Export boss quits over bureaucracy

wasology has quit because of "The CSA started its own export that the staff of Export Thave been living with for more than 12 months".

The Land of the cause of the cause of the control of the control of the cause of t points interested in exporting information technology products."

He has also accused the Com-

The backers, the Defence Ministry and British Telecom, wanted a fixed-price contract, but the developers, led by ICL, insisted on a cost-plus arrangement.

The Ada Group consortium blamed BT for a "precipitate withdrawal" from the scheme last month but is now talking to the

month, but is now talking to the Defence Ministry to try to revive

More's outburst comes in a everyone else, we're unhappy that agers. Moore has worked unpaid.

Export! I' has 150 members and

£9m Ada and Chill language

project hangs in balance

But Doug Eyeions, director general of the UK CSA, denied that there was any discours with Export T was formed at the end of 1981 with £248,000 from the government to see it through 1003 portIT.

"We're not muscling in on them at all," he said. "The whole future of export co-ordinate of exporting information technology is under discussion and like the total control of the control of th

Moore's outburst comes in a severyone else, we're unhappy that severyone else, we're unhappy that severyone else, we're unhappy that it's taking so long."

Export! I's annual general it's taking so long."

Moore said: "People must recognise how much more can be achieved by working together, particularly when there is no concern about who is to receive the credit. Until they do the limited manage and the US. In its first year it they do the limited manage and the US. In its first year it they do the limited manage and the US. In its first year it they do the limited manage and the US. In its first year it they do the limited manage and the US. In its first year it they do the limited manage and the US. In its first year it they do the limited manage and the US. In its first year it they do the limited manage and the US. In its first year it they do the limited manage.



MOORE . . . Bureaucratic meandering".

Hardware thieves

by John Riley THIEVES raided London-based RC Computers at the weekend and got away with four business computer systems worth at least £20,000.

The company was to use the systems in a training school for users scheduled to get underway in

January.

The haul comprises three ITT
3290 intelligent terminals and one
RC 855 multifunction workstation, with disc drives and Facit
Addo 4510 matrix printers.

by George Black

A BID to save the £9 million government-backed Ada and Chill language research scheme hangs in the balance this week.

The backers, the Defence Ministry and British Telecom But if the raiders think they will sell them off quickly to the home computer market they will be disappointed, says John Mumford, managing director of RC Compu-ters, a subsidiary of the Danish company Regnecentralen.

up and the designers would have to go back to their previous em-ployers. Pifteen have already been laid off. The Ministry is negotiating with BT about splitting the Ada and Chill elements, after the collapse of the original contract. The MoD interest lies in maintaining the Ada part of the scheme for its real time applications in NATO, not with Chill, which is a telecommunications tool. BT, however, said it "They got the hardware, bu didn't take the special cables which make the printers work with the terminals," he said. "They He spoke bitterly of the govern-ment "pumping millions into In-mos, but unwilling to spend a

could have understood it if they'c

Company News ... Micro News...

Downtime by Chad

Liveware File

Letters to the Editor

Marketplace ,..........14/15 Sales Bit31

Puzzler Profile .

Platform

Leaders ...

up in the City in 1979, sells its own RC 855 workstations and configures and supplies software to ITT

houses.
"The theft has been pointless,"
added Mumford. "People in the
business world want to know who they're buying equipment from, and want the maintenance and software support that goes with a sale. It was a waste of time for the thieves because as soon as they realise they can't sell the systems, they'll dump them. Whatever hap-

pens, we've got a hell of a problem

trying to get replacement systems by January."

microcomputers, plus calculators, Forecasts put the entire domestic and business marker at just 75,000 machines in the next three years.

Swiss role

BP switches

mainframe

No ITV micro ITV will not be endorsing one par ticular micro to go with TV pro-grammes made by the ITV companies. But individual com-

panies will continue to develop a range of TV programmes aimed at computer users in small businesses, education and the home.

Monday's decision not to promote an ITV micro was made because

doing so might affect advertising from other micro manufacturers.

SWISSAIR has moved into computer retailing by opening a shop in Zurich. The company expects to win a "considerable" share of the

tiny Swiss market by selling IBM Apple and Hewlett-Packard

ONE of the UK's biggest ICL users, BP, will buy an IBM 3083 instead of an ICL Atlas for its London-based international marketing operation. BP uses a variety of hardware, but invested heavily in ICL's 2000 series mainframes. ICL has sold only two of its IBM-compatible Atlases, made by Pujitsu in Japan, since May 1982. It had hoped to sell 18 by now.

to IBM

Combined issue Weekly is the last until the New Year. It combines the issues of December 15 and 22; the issue of December 29 is dropped. We wish all our readers a happy Christmas and a prosperous New Year. Com-puter Weekly will be back on Janunry 5. This issue has suffered from production difficulties.

either."
"The equipment is of use only to those with a significant IBM presence as our communications are entirely with the IBM world.



cations tool. BT, however, said it

still believed in a joint de-

Corfield calls for



Era of free trade



Summit failure puts



relatively small amount on soft-

swiped a bunch of Apples or a set of PCs, but they'll come unstuck with these." RC Computers, which was a Altergo Products' FQS Friendly Query System allows Software File .

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IBM livens up teller machine market

by John Kavanagh
THE automated teller machine
business was shaken up by annonneements from two market leaders, NCR and IBM, last week. And the news knocked \$10 off the shares of a third major supplier,

In the US, IBM announced a machine which can read cheques and issue coins as well as notes but NCR said there was little demand for change issuing and the trend was towards notes of higher

walnes.
Meanwhile NCR unveiled a machine based on its new 5080 but anned at building societies. The machine can be programmed in

The IBM 4730 can issue three types of com and five denomina-tions of banknote. If it runs out of the denomination requested it is-

Cash deposits can be made in envelopes. The machine can print information such as time and date on the envelope. It can also scan the machine-readable characters on cheques and accept deposits that way. In addition it can be used as a cheque-cashing machine: rehable customers can be allowed to feed in cheques and get cash in return. This is thought to be particularly interesting to the US, where people are paid by cheque rather than by credit transfer directly to their accounts.

IBM said the cash-issning feature could be helpful for retailers boking for change. But NCR disqueed, "It would

be possible to adapt our 5080 to issue coins but we feel from our talks with users that no one wants this," the company said.

NCR emphasises both the Pas-cal programming and ink-jet dereal programming and ink-jet deposit envelope printing on its new machine. Building societies manager Mike Nort said the unit could down for the holidays, the only down for the holidays, the only be programmed to print anything.
Building societies were considering a joint auto-teller machine network; they could get their machines to print the name of the second Reading tomorrow.

Scores of the Bill, which aims

The NCR 5080 offers a graphics display and voice output. NCR help speed up and make cheaper claims to be the market leader, with over 17,500 machines installed worldwide.

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Telecoms

by our Parliamentary

prrespondent

Bill for Lords

THE government hopes today to complete the Third Reading of the Telecommunications Bill, so that

Sponsors of the Bill, which aims o end the solicitors' monopoly in

VT101 LA100 VT102 LA12

VT131 LA120

lerminula.

digital

'Crazy' education Grazy' education Grazy education Grazy engineers Grazy broad exchanges on day. They are inembers of the control of the con

by John Kavanagh A NEW attack on national policy on electronics and computing education has been launched by one of the top directors at Plessey. Group personnel director Parry Rogers is looking overseas for hardware and software engineers because of a "crazy education system" which does little to attract physics and mathematics graduates and

Rogers' comments come at the end of a year in which education policy has been attacked by other top industry figures, including ICL managing director Robb Wilmot and Hewlett-Packard's UK managing director, David Bald-

In addition, the Institute of Manpower Studies has warned that cuts in government support

by Donald Kennett A MOBILE clite of management, able to serve both the public and

private sectors, and a government-backed insurance scheme for new technology contracts, were two

boost UK performance in world

The proposals were made at the

final conference in the UK World

Communications Year pro-

gramme, by Standard Telephones & Cables chairman Sir Kenneth

Corfield's call for a management

elite echoes the aims of the three-

year-old Matsushita School of

lovernment and Management in Japan, which was set up with £14 million of Konosuke Matsushita's

proposed last week to

for degrees in technology subjects could pose critical problems as industry." soon as the economy recovers.

Pleasey is looking for 100 specialists in the wake of recent big orders for defence systems. It is advertising in Australia, New Zealand, Canada and Europe, after failing to find people in the UK.

"Not enough of the best people are sticking with maths and physics even as early as the O-level stage," Rogers said. "The children tend to follow the best teachers—and not enough of the best maths and not enough of the best maths and physics graduates go into teaching, because of the pay,
"Our industrial future depends

on technology, but our crazy edu-

Pleasey is looking for 100 to see more university resources spent on electronic engineering. He added: "The universities are producing large numbers of grad-uates who find it difficult to get jobs, yet there's a huge shortage of the skills we need."

He warned that things could get worse. The number of 18-year-olds was expected to fall from 800,000 to 600,000 in the next decade, so if the proportion of electronics graduates stayed the same, the shortages would become

cation system prevents us paying more to a maths teacher than to a Greek or geography specialist.

"They should be paid more:

"They should be paid more: Corfield calls for mobile

Industry had been sympathetic, but the Treasury had said no be-cause it would set a precedent.

In a speech that was critical of both government and industry, Corfield identified protectionism, introversion and the inhibition

about risk-taking, with inadequate financing and insurance mechan-

isms, as key factors in limiting UK performance in world markets.

The remedies he proposed were to resuscitate national planning

processes, to introduce commer-cial disciplines into government spending and to revamp the coun-try's education and training

Government spending on re-search should be confined to fun-

damental pre-competitive

research, which companies could collaborate in, and to the mainten-

ABOUT 1,400 telephone engineers went back to work in three

international exchanges on Monday. They are inembers of the Post Office Engineering Union who were locked out two months ago following a work-tu-rule in protest

Bryan Harper, POEU assistant secretary, said the union would still be carrying on its campaign against privatisation and would consider further industrial action.

Research centre

ICL, Bull and Siemens have formally founded their new joint re-search centre in Munich, to be called the European Computer Industry Research Centre. Each company has an equal share capital of £150,000. The Centre hopes to tap the £840 million Esprit pro-

Viewdata first

TRIUMPH-ADLER aims to be the first major European computer manufacturer to use viewdata to keep in touch with its dealer netkeep in touch with its dealer net-work. Information such as price changes, software updates and new product news that was previously sent by post to the 160 dealers will soon be available from T-A's closed user group pages on Prestel.

Prestel success

DOMESTIC use of the Prestel viewdata service has almost quadrupled in the last year. The number of sets has risen from 3,100 to 11,100. Over 35,000 sets are installed.

Legal service

AN online legal information service has been launched by Eurolex using the Datasolve bureau. It enables legal people to keep up to date with important cases and new laws through microcomputed by laws through microcomputer links instead of having to wade through 60 professional journals. Services covering EEC and Irish law will be

Commons speech

EVERY word spoken in the Com-mons is now available through ter-minals from Scicon's Polis arliamentary information service. The full text of Hansard, the official record of Commons roceedings, is entered to Polis the same night. An index helps users find the relevant Hansard refer-

Joint satellite

NASA and Canada's Department of Communications are to develop joint commercial satellite service or voice and data communications to mobile terminals operating in rural areas of North America. Tenders for telecommunications carriers to collaborate in the

management elite in UK

CORFIELD . . . "The lead has to come from the top."

personal fortune to train people to influence society, first in Japan but later over the whole world.

Corfield highlighted Japan as the most successful of the UK's competitors at reconciling its social and industrial objectives, creating and international culture in its com-panies and teaming industry with government and bankers to offer

attractive contract packages.
"While in the UK we act as if social and industrial objectives were in competition with each other, our competitors, notably the Japanese, see them as mutually

supportive," he said.
On international marketing he said: 'Management is insufficiently aware of overseas markets and, more particularly, of how the design, engineering, manufacture and selling disciplines have to be integrated if overseas markets are

"The lead has to come from the

, and for this we need to consider how to generate in Britain a mobile elite of management for the

mobile elite of management for the public and private sectors."

The virtual impossibility of getting insurance for large projects using unproven technology was a major factor in preventing UK firms from exploiting their innovations, Corfield said.

His own company error His own company, STC, had

quotation he had been able to get was a five-year guarantee for a

remium of half the contract price.
The Department of Trade and

missed out on the opportunity to supply the bulk of the first transat-lantic optical fibre cable, despite having bid with technology and lantic optical fibre cable, despite having bid with technology and price as good as the best, he said, because Western Electric had been able to offer a 10-year guarantee on The best commercial insurance

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CIRCULATION

shing Director; Dr J. A. G. Thomas

Sinclair sees high tech 'wall of secrecy'

and bolt them together.

allow us to do so; hardware and

software were now too intimately

elated to ignore either; and reli-

ance on others was geographically

best to devote itself to software was

a fallacy, said Sinclair, because if

we did not develop hardware we

would not develop software either. Processing and memory were be-coming blended, so that sophis-ticated CAD systems under our

"Either we get ourselves back

we're out of the game," he said.

Japan was willing to supply
components while it was building

up an industry, but when it gained

and secondly, if at all, to outsiders.

'Japan sees computers as the

own control were essential.

The view that Britain would be

by George Black THE era of free trade between nations in technology is ending, and soon all research will be conducted behind a wall of

This was the harsh warning of Sir Clive Sinclair, urging the Alvey Programme directors to aim for self-sufficiency in VLSI chip-mak-

He told a British Computer Society meeting at Slough Higher Education College that the Japa-nese and the Americans would close their doors to international customers when the battle for computer supremacy reached its

Alvey Programme VLSI director Bill Fawcett also referred to the dangers of dependence on imports, but he said that the UK could take only a selective approach to supporting an infrastructure of its

It would not be possible to apply the policy "across the board".

Sinclair said that VLSI brought single most important industry it will soon be bigger than the car industry - and is absolutely deterfundamentally different situation to the first four generations of computers. British manufacturers the world," he warned. mined to outstrip the US and lead

SINCLAIR ... "Wall of secrecy" for research. The Americans had been open and generous in supplying tech-nology in the past, but now they

too were starting "insular and secretive research programmes doing - supplies would be directed "first to its own producers nicron circuits within two years and I micron circuits within five. Much of the equipment needed to achieve those goals was not made

n this country, he admitted. We needed to move from wet to lry etching, and this was one area n which we needed to have our own infrastructure, he said. Talks

were going on with the Trade and Industry Department to try to form a strategy for safeguarding access to the basic resources. Responding to a question from

Fawcett gave the targets as 1.5 the floor, Sir Clive again stressed "very serious implications" if Inmos was allowed to be bought by an American organisation. ICL mainframe applications

manager John Allamby said his firm was also worried about possible US embargoes and whether the "shutters could be put up" on its relationship with Fujitsu.

ICL loses over 60 staff in plant closure

CL has lost over 60 technical staff hecause of its decision to close its software development centre at Dalkeith, near Edinburgh. The defections could compromise ICL's plans for the Perq worksta-

When the plant was shut last Friday, of the 77 employees offered jobs at ICL's research centre at Kidsgrove only nine had agreed to make the move. Another four will go to Staffordshire on a temporary basis, and seven graduntes recruited for Dalkeith will start work in Kidsgrove. The rest have accepted ICL's redundancy terms and will stay in Scotland.

An ICL spokesman said: "This will have a considerable effect on the Perq project in the short term - obviously not as many people have moved as we would have liked, despite considerable induce-ment to do so, though a nucleus of experienced staff has agreed to

The company has already begun recruitment programme to fill he gaps, but it envisages "a staff hortage for six months or so"

When ICL announced in September its decision to concentrate its Perq efforts in Kidsgrove, the company presented the move as proof of its commitment to the machine. But the loss of its Perq software development team is a severe blow to a product that ICL admits has proved a disappoint-

ICL said that the market for such scientific workstations had not developed as the company had envisaged - in conjunction with

around 1,000 machines.
ICL revealed recently that it had moved to protect its interest in Perq by putting £2 million into Perq Systems for preference shares convertible into a 16% stake in the company. ICL may try to shift development work to Peru Systems until its Kidsgrove team is up to strength.

The bright side is that, accord-

ing to one ex-Dalkeith employee, "the staff have almost uniformly

found fresh employment".
Among beneficiaries is Future
Technology Systems. A spokesman commented: "We have taken a few people from Dalkeith ICL has tried to move scientific and technical staff from Scotland before and failed - and it had no reason to think this time would be any different."

On Monday the first Dalkeith spin-off, Spider Systems, opened for business in Edinburgh. The company has been formed by five senior managers and, although its plans are understandably vague, it intends to develop hardware and software products on a subcontracted basis.

According to Dr Peter Palmer who was previously responsible for all ICL's system software de relopment for Perq at Dalkeith his new company will concentrate on Unix systems software, including the PNX version of Unix for Perq, and local area networking hence the name, Spider Systems. Palmer said: "Spider System

has the best people from ICL

DEC wins second round in piracy case

by John Kavanagh US leader Digital Equipment

seems to have won the second round of its multi-million software piracy case against UK systems house Darkcrest. At a procedural hearing last week Darkcrest was ordered to provide further and better details of its defence and £10 million

counterclaim - and was told it

would have to pay most of the costs of the last two hearings.

Barlier this year, Darkcrest failed to force DEC to prove its

"But we can't prove ourselves innocent until the case gets to court." allegations. Instead, the judge granted an order restraining the UK firm from infringing DEC's software copyright and passing itself off as a DEC OEM.

Legations. Instead, the judge court."

He added: "We won't give in. We'll go to court and prove DEC wrong."

From the beginning of this case in the summer of 1982, Darkcrest

Last week, Darkcrest was told it would have to pay all the costs of the hearing and 75% of the costs of a hearing in October. The company has to provide security for licence contracts state that a

Darkcrest still insists it has not of a software product to pass to one pirated DEC software. "Where we customer. The company estimates us," said managing director Nick year in the UK alone.

Case settled

MICROCOMPUTER firm Com

modore has settled out of court with a UK chip designer who sold a software pirating device — by offering him freelance work. And

the man, Peter Goss, wants to us

the offer to help overcome the lack of good educational software.

High Court injunction preventing Goss from making his Softswitch

While accepting the settlement, Goss argued that he was not a soft-

or any other copying device.

Commodore has also won

contracts with our suppliers — perhaps it's those suppliers which are breaking contracts with DEC." Brackenbury accused DEC of spinning the case out to wear Darkcrest down. "We're suffering because we're regarded as guilty until proved innocent," he said.

has claimed DEC's action stems from business considerations rather than piracy fears. DEC denies this. Its software

costs totalling £26,000 in 28 days. systems house can make one copy



Brackenbury. "If our clients have software it is usually licensed to them by DEC. We've always stuck to our have DEC software it is licensed to that piracy costs it £10 million a BRACKENBURY... No pirates.

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this equipment has been in use for 5 years and fully mainte this equipment has been in use for 5 years and fully maintained by IBN it is planned to complete the transfer in early February 1984 and the Council reserves the right to determine the actual delivery date for the supply of equipment so as to coincide with the disposal of surplus equipment Tender application forms may be obtained from County Secretary & Solicitor, County Hall, Newport, fale of Wight PO30 1UD to whom completed tenders must be delivered by not later than 28 Detember 1983.



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ware pirate; the pirating was by users who bought his device. The Softswitch enables users to Suzanne or copy Commodore software from Simon on our Buy Technology fast Ring 0734 61031 sales desk now.

for the lack of commitment to the

language among UK systems and

don't seem to have heard of Ada,'

he says. "They don't seem to be impatiently waiting to get their hands on the tools."

He emphasised the importance

of a major national research effort

and says Britain could lose a big

opportunity if the Ada Group and

Augusta Consortium plans.

backed by the government, are

is a definite answer. But it does

provide an enabling tool for

looking at systems design prob-

lems, and prevents you from be-

coming embedded in a system that

"Our philosophy is not that Ada

"A lot of them surprisingly still

software houses.

allowed to die.

you can't change.

Critics slay 'millstone' Data Bill

by Nuala Moran CRITICS of the Data Protection Bill who have warned that it will not do enough to protect the rights computers which, in the govern-of individuals were told last week ment's view, leads to the level of that it is impossible to protect public concern." rights without affecting commer-

the right balance," David Chester-ton, head of the Home Office data protection division told a conference on data protection at Leiceser University last week.

"Any Data Protection Bill must be a collection of balances and compromise, and the government makes no apologies in this res-



Bill because "it is the capability of

disagreed with this. "There is an "Every protection for a data equal if not greater threat from subject is an impediment to a data manual records," he said. "All oser, so it is very important to get other countries apart from Den-

the threat to privacy coming from private sector or local government computers. "What concerns sis will eventually be sorted out, and removes long-term guar-

right of access to information held on them under the Bill mean that many central government compu-

ment is proposing is the worst of all worlds. It deals quite ineffectively with privacy, and as far as the

Ted Cluff, secretary general of the Institute of Data Processing Management said: "The government is only concerned with the protection of trade. The difficulty lies with the fact that the Home Office is trying to convince us that the Data Protection Bill does

ter files will not be registered.
Cluff added: "What the govern-

VAN ROSENDAAL . . . "We need to sort out a common set of the rules of the game"

Monthly payments 'will make Esprit operation difficult'

prise to the Community officials setting up the £840 million Esprit European R&D programme.

The officials are acting on the assumption that the budgetory of

officials to administer the prolixemptions to a data subject's gramme.

"We're used to this sort of situation in the European Community," said a senior official last week, "We run into a stone wall from time to time." He expects the European Parliament to reject the budget this week as a direct result of the summit, which will place Community funds for 1984 in a

In that case, the Commission

by John Riley
THE collapse of the European budget each month — and have to make do with that. In the short term this will not affect the Esprit programme, as officials are currently drawing up tender docu-ments. But "the situation makes

> European officials expect a mini-summit to sort out the crisis before the next scheduled summit

meeting next March in Brussels. While the Brussels-oriented Esprit programme is geared towards the long-term supply of information technology, two new Luxembourg-based programmes focused on the long-term use of information technology in Europe, are beginning to get off the ground. The first of these, the Specialist

Information Market Development Programme, was proposed re-

Cornelis Janssen van Rosendaal, the Commission's head of information management, expects that by the end of 1984 there will be up to 65 projects under the Programme.

Approval for the full four-year programme is expected by Easter.

The Information Policy Development Programme, which has no opment Programme, which has no cash sum on it at present, will provide a forum for addressing topics such as satellite TV, telecommunications policy, and transborderdata flow. "It is not concerned with the industrial side, but how IT affects the user," explained Janssen van Rosendaal. "We need to sort out a common set of rules of the game." HOSKYNS has completed the third sale of its Accounts Payable software for IBM mainframes since its launch in July. Harveys,

by John Riley
THE National Westminster Bank
is to sell off the ICS Group of Irish

The ICS (Industrial Computer

APPLIED Research of Cambridge has taken two big orders, one from Standard Telephone and Cables for a stock control system, the other from IDC Consultants for a

computer aided design package. STC has ordered the Bros system, and IDC is taking two worksta-tions based on a Prime 32-bit minicomputer for use on civil and

Dennis Bell, Lamont Holdings company secretary, commented: "We comprise a wide range of companies – from textile to engineering – and have been looking for an opportunity to buy into the high technology area for some time. We plan to expand ICS' activities in many fields outside Ireland," "Builder invests School CROYDON-based builder Mansell is investing £130,000 in an System 38 to replace its ministrative work. The new system will provide better access for branch offices in Westminster and the City of London

SALES BRIEF £1.5m Canada **GA** goes orders go \$300,000 to Graffcom UK software house Graffcom back into Systems has won two export orders from Canada expected to be worth £1.5 million over the next three

years. The two contracts, with Xerox Canada and micro dealer Data Crown, involve the WP 2020

word processing package for eight and 16-bit microcomputers run-ning the CP/M operating system. Xerox will offer the software to

buyers of its microcomputer, while Data Crown will sell it with several

makes of micro, including the IBM PC, DEC Rainbow and NCR Decision Mate.

CALCOMP of California has won a \$500,000 contract from Eurocontrol, the Belgian-based European Organisation for the Safety of Air Navigation. The firm will install an air traffic

an air traffic control simulator at Eurocontrol's Institute in Luxen-

Chasing the bills

TWO Western newspapers have spent £55,000 with GCS Commu-

nications to help identify advertisers who do not pay their bills. The

computer system is an extension of an existing set-up for controlling billing of advertisers at the Western Morning News and Western Evening Herald.

of Bristol Cream sherry fame, has bought the software for 120,000,

bringing total sales of Hoskyns' new Modular Application Systems to £100,000.

THE nation's first dial-a-ride ser-

vice for the disabled has been launched in London by the Ha-

ringey Disablement Association, with the help of a General Automa-

tion Zebra 1500 computer. Fletcher Computer Services won the tender to supply the machine.

Airport parking

THE British Airports Authority

has gone to Godwin Warren Control Systems of Bristol to supply and install a computerised parking system at Heathrow Airport's Terminal 2 car park. The system will have continuously the system will have continuously the system will have continuously the system.

system will have equipment at three entry and five exit lanes

linked to a cashier payment

COMPUTER Field Maintenance

Big BT deal

Sherry buy

Dial-a-ride

Air control

bourg for training staff,

the black by Nuala Moran

General Automation Inc announced a return to profit last week after three years in the red. A profit of just over \$300,000 was made on a turnover of \$17.1 million in the quarter August to Octo-

This compared with a loss of \$2.7 million on sales of \$16 million in the previous quarter. The com-pany also reduced its bank debt from \$26 million to \$14 million.

This turnaround is attributed to a three-year recovery programme launched by Leonard McKenzie, chairman and chief executive, in September 1980. The basis of this plan was to diversify out of General Automation's traditional industrial market and into the small business market.

General Automation introduced the Zebra range of Pick-based micros and minis and it now claims to be the Pick market leader in the US. There are 50 Pick dealers in the US and the company has signed up more than 40 of these.

The latest addition to the Zebra range, the 750, was on show at Comdex. It costs £7,995 and supports up to four users. The company emphasises that it is not a personal computer.

nounced a Xenix-based Zebra range, which will be available in the UK from the second quarter of

According to Mike Long, man-aging director of General Automa-



tion in the UK, it is now the market product leader for Pick.

Zebra sales have reached £1 mil
increase in business.

There are 10 dealers for Zebra in number of vertical markets inbroking, local government and ficet management. The plan is to double this number and Long said there were several waiting to sign

30% of its business in this market

up at the moment.

But Long said that General Automation will still be concentra-ring on the industrial market and expects to do about £2.3 million or

Overseas business accounts for

40% of General Automation busi-ness, and the UK is responsible for just over 40% of this. Long said: "The total UK target

for the current financial year is £7 million. We are already ahead o plan due to Zebra sales. We expect to do £8 million in 1985 with healthy profit level.

"We make our profit primarily from selling hardware, but we know we need to sell complete systems. General Automation not a turnkey systems house, but will identify the best system.

'Govts have

The joint research scheme,

headed by ICI's design systems group at Runcorn, will take three

years to complete and is being funded to the tune of over

the university's chemical and

mechanical engineering depart-

ments to define an environment

ICI is believed to have put

similar job out to a software

consortium several years ago,

which made no progress because the tools to accumplish it did not

Now Leeds has become the first

get the Rolm Ada compiler

Personal Computer, launched this

month in the US, is already being

for constructing a new plant.

by Philip Hunter. TANDY's challenger to the IBM operating system, the basis of IBM's PC-DOS, instead of used on all other members of the TRS-80 range. With a huge chain of computer

partment and is hosting it on the first British installation of Data

General's 32-bit supermini, the MV10000. ICl sees this as the

chance it has been waiting for to

It will involve a set a of graphics

relaunch the ambilious program-

workstations - the supply

contract is now out to tender - to

be connected by a local area net-work, either Cambridge Ring or Ethernet, ICI will be working on DEC, Vax and Prime superminis

Behind the university team is the head of Leeds chemical engi-neering department, Professor Co-lin McGreavy, a long-standing Ada enthusiast. He has been working

closely with the head of software in

he computer services department,

David Holdsworth, who has also

been involved with York Univer-

ming endeavour.

kitted out with accounting soft-ware, following a deal with the international systems group MAI.

Tandy will sell nine accounting and consumer electronics slups in the US, Tandy has a better chance than most makers of IBM-PC clones of taking a fair slice of the packages including nominal edger, sales analysis and order entry at \$495 each, giving MAI a potentially huge income from market. But no decision has yet been

sity's Ada compiler.

taken to market the model 2000 in Tandy hunched its TRS-80 model at the Corndex show in Las Vegas with Microsoft's MS-DOS the UK, according to Tandy UK joint managing director John Say-

Tandy arms IBM-PC challenger a range of standard accounting packages written by a UK software house for its Model 4 64K micro launched in July. The packages will cost £150 each. Accounting software is also being developed

for the larger Model 16.
MAI also makes business computers, but according to UK muniging director Mike Harris there is little overlap with Tandy, as MAI is not interested in the personal computer market. So there is no conflict of interest over the soft-

Apple in 'friendly' push with III-Easy-Pieces

APPLE begins a new push this week to keep its market share with the Apple III through "friendher"

applications.

British dealers are being introduced to Apple's rival to Lotus 1-2-3, the integrated spreadsheet, word processor and database which has had instant success on

Apple's product called III-Easy-Pieces, was written by Ifaba

Systems of Los Angeles, author of the Quickfile database which it includes. Lotus developed 1-2-3 on the Apple III, but later decided to the Apple III, but later decided to large of programs.

II. He put in charge of the unit Dave Praydon, who is currently touring Europe to promote its base of Apple IIIs had risk to the put in charge of the unit Dave Praydon, who is currently touring Europe to promote its base of Apple IIIs had risk to the put in charge of the unit Dave Praydon. He said the worldwide base of Apple IIIs had risk to the put in charge of the unit Dave Praydon. He said the worldwide base of Apple IIIs had risk to the put in charge of the unit Dave Praydon. He said the worldwide base of Apple IIIs had risk to the put in charge of the unit Dave Praydon. He said the worldwide base of Apple IIIs had risk to the put in charge of the unit Dave Praydon. He said the worldwide base of Apple IIIs had risk to the put in charge of the unit Dave Praydon. He said the worldwide base of Apple IIIs had risk to the put in charge of promote its base of Apple IIIs had risk to the put in charge of the unit Dave Praydon. He said the worldwide base of Apple IIIs had risk to the put in charge of the unit Dave Praydon. He said the worldwide base of Apple IIIs had risk to the put in charge of the unit Dave Praydon.

- Apple III was hived off as a separate "business unit" by John Scully, the new president brought it by Steve Jobs in July to give the firm a more aggressive commercial in by Steve Jobs in July to give the firm a more aggressive commercial stance. Scully argued that Apple 111 was a specialist field unlike the

He said the worldwide installed base of Apple IIIs had risen from 60,000 to 75,000 since August and that 400 of the 2,000 business software developers were writing ap-plications to run under its SOS

operating system.

Along with III-Easy-Pieces, the New Year will bring a "mouse" or hand-held input device for the III, and an in-house developed spelling

NatWest to sell its Irish companies

computer companies to Ulster-based Lamont Holdings, for

Services) Group comprises five companies, four Irish and one US, which employ about 200 people in total. These are ICS Computing, ICS Computing (Ireland), Software Ireland, Computer Maintenance Ireland and the Californian-based Software Ireland Representatives Inc.

Software Ireland sells Sibol, which converts Digital Equipment's Dibol to Unix and Unix

worth Fig. Maintenance has won its biggest contract yet worth £1.5 million, for installing and maintaining British Telecom's new computerised Directory Enquiry System. The order, part of the overall £25 million contract between STC and RT is one that The sale is being conducted by ational Westminster Bank's Ilster subsidiary, The Ulster Bank, in order "to concentrate on mainstream banking activities", said a NatWest spokesman, In-creased use of online computing in tween STC and BT, is one that ICL might have won had its CAFS nks means they are buying more advanced stage.

the banks means they are buying fewer services from outside.

The book value of the ICS Group's assets at the end of June was £320,000. In the 21 months prior to that, the group had losses of over £144,000. That figure was reached after writing off £350,000 development costs for Sibol.

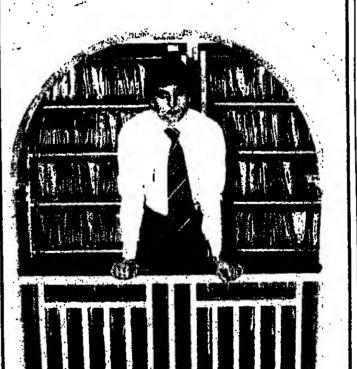
Sin Desmond Lorimer, chairman of Lamont, has also been chairman of the ICS Group, although, according to the NatWest spokesman, he has had no financial interest in the group.

Dennis Bell, Lamont Holdings company secretary, commented:

"We comprise a wide were buying for a decrease product been more advanced stage.

Applied orders

Standard Telephone and Cat for a stock control system, other from IDC Consultants for a stock control system, other from IDC Consultants for a stock control system, other from IDC consultants for a stock control system, other from IDC consultants for a stock control system, other from IDC consultants for a stock control system, other from IDC consultants for a stock control system, other from IDC consultants for a stock control system, other from IDC consultants for a stock control system, other from IDC consultants for a stock control system, other from IDC consultants for a stock control system, other from IDC consultants for a stock control system, other from IDC consultants for a stock control system, other from IDC consultants for a stock control system, other from IDC consultants for a stock control system, other from IDC consultants for a stock control system, other from IDC consultants for a stock control system, other from IDC consultants for a stock control system, other from IDC consultants for a stock control system, other from IDC consultants for a stock control system, other from IDC consultants for a stock control system.



Micro packager turns East in link with DEC

cial suite and is promoting it on the Rainbow micro in South-cast Asia. Omicron managing director Vince Wells described the endorsement

by George Black

LONDON-BASED micro accounting packager Omicron is
thrusting into the Far Bast through a partnership with Digital RTZ Computer Services will sell The major US mini maker has the range in the UK; and British put its logo on to Omicron's finan- manufacturer of the Microframe Tycom, is also to adopt the products as a standard offering.
ACR, formerly a Tandem

OEM, is now getting a third of its income from marketing Omicron Last week Omicron's Hong programs in Hong Kong, Singa-Kong distributor Advanced Com-

let US firms dominate in Europe' by George Black

INTERVENTION by European rnments has helped American governments has helped American firms gain dominance in the public database market, according to private sector pressure group, the European Information Providers' Association, Euripa.

The association, in a new policy document adopted at its London meeting, argues that the "ubiqui-tous government presence has been the strongest single factor in-hibiting risk-taking by the private sector in recent years".

Piercely nationalistic policies in the establishment of European host systems have favoured only US suppliers, according to the statement. The private sector pro-vides only 30% of databases in Europe, compared with 60% in America.

Secretary-general of Euripa Derek Barlow pointed to the suc-cess of firms like ADP Network European rivals.

The document attacks "at tempts to apply all-embracing in-formation policies according to a pre-conceived model". These have, led to indiscriminate funding of services, the viability of which has not been tested in the marketplace, which means private ini-tiatives based on real market demand have been out back several years. Those countries withpolicy seem to have the best-developed private sector information

The organisation, which repre-sents about 80 firms; has commissioned a survey of 2,000 potentia data suppliers, including software houses, publishers, videotes un-dertakings and consultancies, to get their views on the role of goyernment. The results of the inquiry are to be presented at the

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RANK XEROX

Lo protect his position with the growth of the micro the DPM must become "custodian of data processing thinking," said

Jeff Chittenden, information enough case.

MICROCOMPUTERS will provide data processing managers with a route to the boardroom if the DPMs play their earths right, according to Ron Yearsley of BIS Annihed Systems.

applications and let end users do the rest. I manage the computer database and I provide the data

Yeardey, speaking at last week's data processing seminar sponsored by Verbaum.

The continuents of the week's data processing seminar sponsored by Verbaum.

The continuents of the week's data processing seminar sponsored by Verbaum.

machines if they put up a good



Yearsley said this was happen-ing to a lot of DPMs. "What I call To accept this new challenge users. In the UK it has 1,000 terminals in 20 locations. "What I call the Apple II syndrome is happening in a vast number of companies." ptoduction facilities which take up all his time. The much responsibility for production means he can't think about the feture." he said.

On business micros the policy is in the UK. The growth of the micro is a threat to the centralist machines if they put up a good quickly do whet he president

Parents were getting interested via their children, Yearsley said.
"They find out they don't have to to understand computing.

"The danger is that everyone begins to think it is all terribly easy

provider and not a computer re-source provider," said Kench. "When businesses expand abroad, they need to look at the computer systems underpinning their international business. Our job is to help companies manage their business on an international scale with the same ease that they can now do on a national scale," he

have become a solutions

links 'inadequate' MANY companies have a good big systems.

International data

national data communications net-"Micros will be the terminals of work within their own countries the '80s, the device through which but lack a good infrastructure in end users communicate, so it is their international data commu-important that some standarisation nications, says the chief of a major US information services company. of micro is established.

"We decided to use IBM's R Tony Kench, managing director of Geisco's UK and Irish operabecause it is the most available worldwide, with ready support and maintenance. We did no ions, made this criticism when innouncing last week that Geisco has now made the transition from a choose it on the basis of a technical ime-sharing bureau to a fully evaluation.

Geisco has two main ledged international systems computing services. The Mark III service uses 42 Honeywell DPS ! Kench also announced that Geisco, a subsidiary of the US electronics giant General Electric, has also become an IBM-PC computers grouped in cluster working in conjunction with and the other, the Mark 3000 ser-"Changing technology over the 1970s has meant that users can now get direct interactive access to "Changing technology over the frames. The company is currently evaluating a Japanese manufacturer's computers to replace DPS 8s. systems. But over that time, we have built up our international



New UK design centre

by Philip Hunter
LSI LOGIC, the gate array specialist now enjoying explosive growth in the US, has unveiled its first European design centre in Bracknell, Berkshire.

It is likely to throw up a strong challenge to UK firms like Perranti, and Marconi Electronic Devices, which already have

vices, which already have computer-aided system design centres in Europe.

LSI this week held the first five-

is course for its customers on the use of its facilities for system building. After the training, customers hire their own office at the entre with a terminal online to LSI's Amdahl IBM-compatible mainframe so that they can design

their own integrated circuits.

LSI vice-president for European operations, Robert Blair, said that some bigger customers, such as Nixdorf, had taken a licence for the LSI design software and installed it on their own computer to design logic greats. to design logic arrays.

"But this is not the sort of thing a company starting up with five guys can do," he adds. "It is far

Marconi offers a similar service from design centres in the UK, Sweden and Italy, although, un-like LSI, it will also supply its software and train customers to design gate arrays on their own

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financial spread-sheet program while the It may surprise some people to discover second computer outputs a word processing package is made by the pioneers of copyingdocument to a printer.

that the most versatile microcomputer

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out two functions at the same time.

two processors and two memories. A 16

Rank Xerox.

A1.

of the microcomputer.

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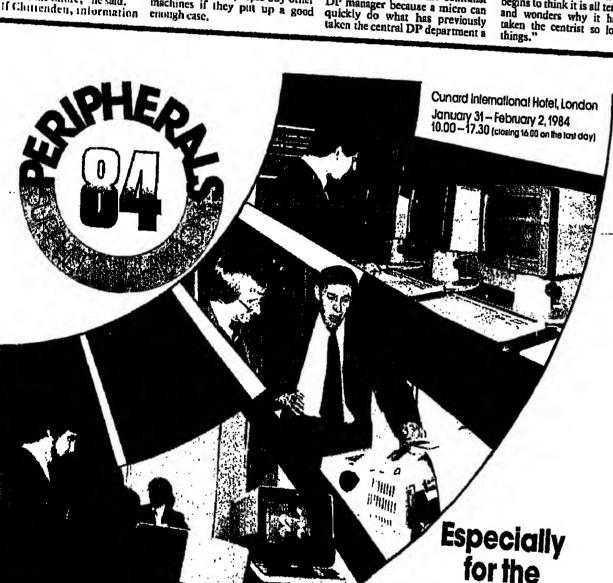
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CHITTENDEN . . . "I provide the data highway." Although he decides what type of equipment is bought, Chitten-den is not in charge of every system. "The dealers recently ong time," he said.

"A further threat to the DPM is that the guy in the periphery is beginning to think he knows a lot system. "The dealers recently bought themselves a database which I'm not responsible for." about computers."



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SOFTWARE FILE

A strategy document on software engineering promises to revolutionise the industry . . . John Riley reports

Alvey steers production of software into the factory

DRAMATIC changes will be made in approaches to software production over the next ten years which will affect nearly every analyst-programmer in the country.

At present software production is a labour intensive process, but it will eventually become capital intensive. The Alvey Committee strategy document on software engineering outlines how it intends to help bring this revolution about.

implementation of ideas generated by innovative R&D; and, finally,

exploitation and evaluation.

An important point about the programme is that it is to some extent market driven: "In many areas, existing market and econo-mic conditions will be more significant than considerations of technical excellence," says the report. The programme will not shrink from importing ideas and methods from abroad where neces-

In the report Talbot says that he does not "seek to estublish Unix as The innovation part of the programme will take up £17 million, a long-term Alvey standard", but that Unix is a good starting point "Further work will be needed to or 26% of the software engineering budget. The emphasis is to harness ideas quickly and bridge the "deprotect against an undue level dependence on the Unix base," h velopment gap" by testing ideas on The third generation IPSE life-size projects rather than on which is expected to be initiated in the fourth year of the overall pro-

The second generation will be developed over the second and third years of the software engi-

neering programme, and wil

involve at least two approache

One approach will be an evolution of the first generation Unix-based IPSE, and the other will be

gramme, will contain knowledge base and "intelligent" tools. That will be the Information Systems

"non-Unix attack".

small-scale experiments. Projects in the innovation area will aim at improving description and modelling of the software process: developing formal ways of and the one for man-machine interface is due out shortly. A report sponsored by the Science and Engineering Research Council and the Department of Industry was adopted as the interim strategy document for intelli-

> gramme, which will receive £19.7 million is to exploit and evaluate services will be set up in the first year followed in the second year by demonstrations of the first generation IPSE in Software Production

Software File this week takes a closer look at the Alvey Directorate's

strategy for software engineering. The strategy document, one of four

covering each Alvey topic, was released and reported in Computer Weekly

last week. The VLSI strategy document is discussed in this issue (page 11)

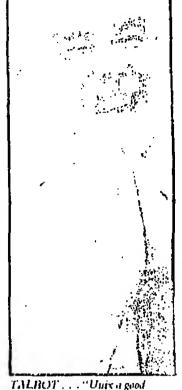
second generation IPSE will reach

overall programme to fit limited resources, and certain areas have been omitted, including database development and the production of specific applications such as computer integrated manufactur-

links with the software engineering component of the £840 million European Esprit programme first instance.

The Alvey software engineering strategy overview is similar to the Esprit overview, with the three concurrent approaches of theoretical research, software deelopment, and application. Esprit shares the idea of an Information Systems Pactory as its goal.

"It is hardly surprising it the Alvey and Esprit programmes do look similar, said Oakley recently, pointing our that there was from the same sources. Talbot aims at establishing good levels of ing. Also, time pressures mean synergy between the two programmes as far as software engi-



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gent knowledge-based systems in August. specifying requirements; measuring software productivity and quality; and finding ways of reThe third part of the overall pro-The primary aim of the Alvey software engineering programme is to steer software production using software components. from its current ad hoc "craft" language independent de-velopment methodologies. To and findings will be fed into the chieve that aim the Alvey Direcintegration and exploitation parts torate intends to spend £65 million over five years, of which £38.3 mil-lion will be from government Oakley is particularly concerned with measuring software pro-ductivity: "It is easy to aim for a sources.
Although the UK software industry is healthy at present, with "mushrooming growth in the VLSI engine to push for or micron geometry, but software tar gets are difficult to express in nu merical terms. We must change that. We need a drive toward measurement, not in lines of code but in lines of quality code." The largest proportion of the software engineering programme's budget, 44% or £28.3 million, is to go into the integration and imple The aim is to produce integrate project support environments These are defined as compatible sets of specification, design, pro gramming, building and testing tools supporting a developme software life cycle. They will also have multi-language capabilities. The report sees a growing synergy between hardware and software design processes, and aims to develop one fully inte-OAKLEY . . . "We pay our people grated project support environ-ment that will cover both hardware number of companies offering software products and services, and software development. The re significant overseas revenues, and sult of that environment will be an an academic community of world standing", the UK still has an ad-Information Systems Factory, th true focus of the programme, and which is scheduled for the end of the Eighties. verse trade balance and faces in-creasingly stiff competition from Before reaching the goal of an Information Systems Factory, That is why an "essential prehowever, there are three generations of integrated project support environments (IPSE) to be capability of producing cost effective, high quality software,"
says Alvey software director David
Talbot, who drew up the report.
Alvey programme director Brian The first generation IPSB, to be constructed in the first year, will be file-based, and Unix will be Oakley warned recently that although we in the UK are excellent at software, the reason we have a that Unix is rapidly becoming a d facto standard over a wide range of systems and organisations and wants to take advantage of Unix competitive edge is "partly due to the slave labour rates we pay our The software engineering promarket for Unix-based dewhich is, according to Oakley, "the most important part of the Alvey initiative", covers all stages of the software life cycle. It is divided into three concurrent tools.

The second generation IPSB will differ from the first generation, in that it will have a databaseparts: innovation; integration and based rather than file-based tool set. There will also be distribut

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According to research, managers spend 25% of their time waiting for information.

A Motorola Information System turns that wasted time into working time.

(That's what office automation is all about). By combining the expertise of Four Phase Systems and Codex industries, Motorola developed a series of products that can speed the flow of information in your office

Products in the word processing, data communications and data processing fields that can be installed as part of a package or separately with your existing equipment.

Together, they form a network so that no-one in your company need wait for information. The answer to a question

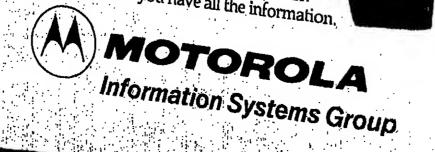
Plus, Motorola is committed to building equipment with industry standard compatibility. You'll be able to expand along with future developments in office automation.

And finally, while our name may be new to you, it's a familiar one to those in the electronics industry.

That's because the Motorola MC 68000 microprocessor is the heart of some of the world's most respected microcomputers.

Call Noel Voice at (0628) - 39121 for complete documentation. Or write to him at Motorola Information Systems Group, 27 Market Street, Maidenhead Berks, SL68AA.

It won't take you long to decide on Motorola once you have all the information,





"IARP . . Replaced as chauman.

All change at Vector Graphic

VECTOR GRAPHIC will not want to remember 1983. There was a time when the company was was a time when the company was one of the brightest young things on the West coast. But after a year of management upheaval and persistent losses, it's all change again at the troubled micro maker.

Lore Harp has been replaced as chairman by Jean Deleage, general purtner of Burr, Ligan, Deleage & Co, one of the big US venture capital firms.

The move came after Burr Egan agreed to put \$2 million into Vector Graphic. It now has a 9% stake in the company, and Deleage is clearly anxious to protect his

Harp remains president and chief executive of the company and will still handle day-to-day operawith familic day-to-day opera-tions. She resumed the presidency in April when Fred Snow, hired from Honeywell and in charge for less than ten months, was sacked. Vector Graphic also lost this year Robert Harp, Lore Harp's former husband, and co-founder of the company.

Deleage also becomes chie. financial officer.
The new funds come at a critic.

inconent. The company has just reported a first quarter loss of reported a first quarter loss of \$701,000 on turnover down 10% on the same period last year at \$6 million. The investment will take the form of a five-year subordinate loan, and will go straight towards working capital.

City bureau doubles profit

The company provides specialist bureau services to City institutions. Most of its progress came from a Commodity Accounting Service where three fuctors housied profits. Rolfe and Nolan put up its prices by around 10% at the beginning of its financial year in Alarch; it has increased the number of commodity brokers is serves to 64 out of a total of around 250; while the commodity market saw a 20% increase in trading

volume during the period.

The company's cummercial services division, which acts as a DEC distributor, made, money during the period for the first time.

Leasing group caught in C&W share backlash

ANOTHER tender flopped last week as Datasery, the US-based fBM leasing group, gor caught in the wash made by the government's sale of Cable & Wireless shares are trading at a premium."

At a striking price of 75 pence he issue has raised £7.35 million for Datasery, giving it a market value of £18.6 million. The com-

Rupers Faure Walker, of Samuel Montagu, the merchant bank handling the issue, was "very disappointed — sentiment changed completely after Cable & Wireless investors lost their appering."

Atlantic Computers and United the Leasing, the other IBM leasing house quoted in the UK, came to market with p/e's of 18 and 17

Montagu commented: "The Cable & Wireless headache lasted over the weekend. Perhaps we are getting too close to Christmas. Certainly people seem to be tiring of the tender method?"

for Dalasery, giving it a market by value of £18.6 million. The company has forecast profits of £2.1 million on turnover of around £100

market with p/e's of 18 and 17 respectively. Both have improved since then, and on the basis of actual tax will work out at around

the tender method."

But despite the reception Faure

But despite the reception Faure

Inc. Dataserv group was formed in 1980 as a merger between Dataserv of Minneapolis and Premier

Perhaps the most interesting aspect of the issue was that Datasery pect of the issue was that Dataserv should come to market in the UK at all without looking for a quote in the US. According to group chairman, Ronald Olson, Dataserv has come to London despite the attentions of US investment banks hoping to float the business in the US. This was partly because going public is cheaper here. He did not expect a higher rating in London

expect a higher rating in London than New York.

been a relationship between He might have added that with the tribulations of Comdisco in the US it might not be an auspicious time to introduce a leasing comtrous debut in J

But in London there is rarely a good time. The City has not been comfortable with leasing companies since the Lloyd's debacle. It is particularly wary of how the leasing business provides for defeating business provides for defeating business provides for defeating business provides for defeating the second terration in its accounts.



trous debut in July. Half that issue was stuck with the underwriter,

but United shares are now trading at 218p, some 50% higher than he price the market would not touch. "United Leasing has turned in storming interim figures. Pre-taprofits rose 112% to £1.26 million And Faure Walker commented:

Two of the four existing shareholders live in the UK, the com
tagsing ousiness provides for deferred taxation in its accounts. If it is any encouragement to Datasery, United Leasing made a disastember.

Management buy-out at Hamilton

tenance has been set up in a man-agement buy-out from Hamilton Rentals, with backing from Meri-

ſ			-	London Sta	ick	1 7	tince	_	_			_ (hanya - 2
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- 1			ow	Stock		Prico	C'nge	-	θJ	Start			
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L	ble she	1	(Vigel C	(10p) Comp (10p) yn (6p)	90 60 120	•							

The table shows the closing prices in London on Friday and in America on Wednesday, The Share subsets no the prices of the UK companies in the table. Highs and Lows have been adjusted 140

Index movemen 5 12 1926 3 10 17 24 31 7 14 21 28 5 12 19 26 2 9 16 23 30 6 13 20 27 Sep Oct Nov

MICRO NEWS

VLSI is one of the four broad areas within the Alvey Directorate's programme for advanced information technology. Micro News this week looks at the VLSI strategy document just published, and the software engineering strategy published last week is also examined in this issue (page 9). A strategy for man-machine interface is due. A report published in August was adopted as the interim strategy document for intelligent knowledge-based systems.

Alvey plans for VLSI

of money does not necessarily reflect the relative importance. "Some things just cost more than others," he says.

Inevitably, the companies that will be grown capability to produce the high density chips that will be needed by other sectors of the four-pronged Alvey programme.

"At the end of the road we are trying to set up the whole process

of money does not necessarily reflect the relative importance. "Some things just cost more than others," he says.

Inevitably, the companies that will be the established ones. "It will have to be picked up by the likes of plessey, Ferranti, GEC and STL," says Fawcett.

But he sees a big part for the many smaller companies involved

The end is to demonstrate one micron geometry CMOS and bipolar processes within five years: the means is co-ordinated research on separate process stages, chip architectures, and CAD tools for VLSI most state backed Inmos. "We hope Inmos will play an important role in the strategy," says Oakley. "We want to involve Iann Barron (Inmos's co-founder) personally."

show off progress in the programme — will be produced along the way. Many of these will be circuits required by other Alvey demonstrator projects from the intelligent knowledge-based systems and man-machine interface parts of the overall Alvey plan in partiof the overall Alvey plan in parti-cular, and chips needed for military development programmes.

Technology aspects of the Ministry of Defence very high performance integrated circuit (VHPIC) programe now come under Fawcett's wing within the

Alvey programme.
"We will need to make sure chips are available for these Alvey and MoD demonstrators," says Fawcett. "That is why the strategy has an intermediate step, to produce 1.5 micron geometry circuits within the first two years."

The steps along the way to achieving these VLSI chips are spelt out by Fawcett in the strategy document: individual process steps and techniques, including basic studies on materials and device physics; processing chemicals and equipment; assembly of process steps into whole processes with tested design rules for producing hardware for evaluation and capable of expansion into full scale production; research on new circuit architectures and algorithms; development of CAD tools and languages in step with the evolution of whole VLSI processes; and investigation of the infrastructure of system software, computing hardware and networking and investigation of the infrastruc-ture of system software, comput-ing hardware and networking needed for collaborative de-

velopment and use of CAD tools.
The VLSI and CAD programme will have £130 million set aside -£100m for VLSI and £30m for the CAD part. Just over half will come from government sources, according to Alvey director Brian logic and memory, with NMOS Oakley. This is twice the amount

But as Oakley says, the amount

McNEILL . . . "Mismatched."

trying to set up the whole process for MOS and bipolar technology," says Fawcett. "The rest is a means

mos's co-founder) personally. Barron was on the original Alvey

Fawcett sees Inmos contributing most of the CAD side of the pro-

Fawcett's strategy document identifies adequate CAD tools and systems as crucial to efficient VLSI design, and indicates the desirability of producing a common design environment for a range of different circuit architectures.

"It will be processary to have the

"It will be necessary to have the cost-effective capability to design complex chips with upwards of one million transistors in a way which ensures the correctness implementation and the testability of the manufactured component, he says in the document.

The first chip demonstrators are likely to come out of the CAD hardware, as are major systems demonstrators. Dedicated be integrated on silicon.

A major system demonstrator could be formed around the next generation of VLSI design workstations based on a substanand incorporating a range of special-purpose CAD chips.

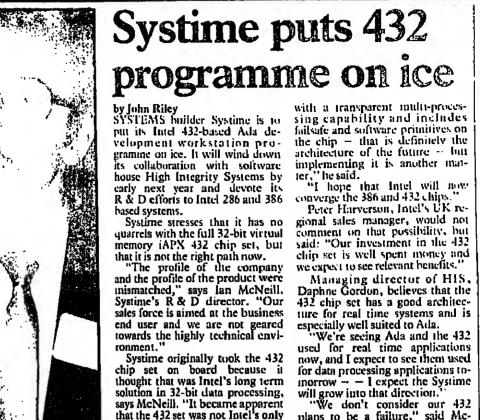
Inmos's transputers will be building blocks for parallel com-

semiconductors where it is consid ered of prime importance, but sig nificant diversion of funds would prejudice the chance of success in silicon VLSI, says the report.

The silicon processes to be developed are a basic CMOS one for memory availability as an option; a CMOS process for military reneering programme, the strategy for which was published last week and is discussed in this issue (page 9). terfaces

PUZZLER

THE number 14,247 has the peculiar property that, when multiplied by three, it produces the same five digits in a different order - 42,741. What is the smallest such number - not counting articitial ones starting with zero? See page 31 for solution.



memory iAPX 432 chip set, but that it is not the right path now.
"The profile of the company
and the profile of the product were

mismatched," says lan McNeill. Systime's R & D director. "Our sales force is aimed at the business end user and we are not geared towards the highly technical envi-Systime originally took the 432 chip set on board because it

inorrow - - 1 expect the Systime will grow into that direction. thought that was Intel's long term solution in 32-bit data processing, says McNeill. "It became apparent that the 432 set was not Intel's only 32-bit strategy and that it and the 8086 compatible 16-bit 286 and full 32-bit 386 chip family were on different R & D paths." "The 432 architecture is radical

"We're seeing Ada and the 432 used for real time applications now, and I expect to see them used for data processing applications to-

"We don't consider our 432 plans to be a failure," said Mc-Neill. "We now have the expertise in that area. We are committed to our 286 plan for next year and a 386 follow-up later. We've put the

implementing it is another mat-

converge the 386 and 432 chips." Peter Harverson, Intel's UK re-

gional sales manager, would not comment on that possibility, but said: "Our investment in the 432

chip set is well spent money and we expect to see relevant benefits."

Managing director of HIS, Daphne Gordon, believes that the 432 chip set has a good architec-

especially well suited to Ada.

ter," he said.
"I hope that Intel will

Chip set programme on ice to support Ethernet

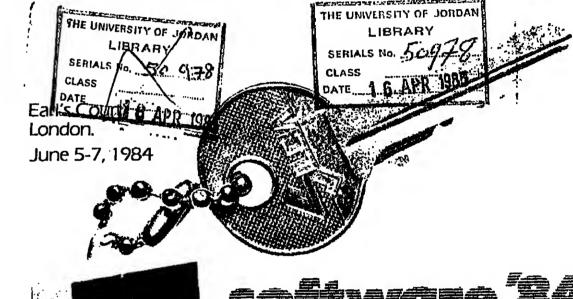
NATIONAL Semiconductor aimto be the first senuconductor manufacturer to support Ethernet and the low-cost version, Cheapernet, with a chip set.

European marketing manage for interfacing, Ian Martin, said that the three chips in the NatSemi ser would cost less than \$100 and would bring down the cost of implementing a network connection from between \$2,500 and \$3,000 to a fitth of that.

The last of the three to come out, the DP8390 controller chip. saves anywhere from 10 to 30 devices in the chip count of previous implementation, according to Marin.

The Cheapernet version, proposed to the US HEEL 802.3 standard committee by ECMA (the European Computer Manufacturers' Association), enables the whole of the interface to be built attached to the network. The lightweight Cheapernet cable is brought right up to a T-connector at the back of the device.

(THE KEY * TO SUCCESSFUL SOFTWARE SALES) THE UNIVERSITY OF JORDAN





the computer market. Reed Exhibitions, the country's largest exhibition organisers, will be staging Software '84 with all the skill the company has already brought to the highly successful Compec shows.

Computer Weekly and Software* will be sponsoring both the exhibition and the

prestigious conference, running at the same time, guaranteeing a high level of interest in both events. inevitably, top quality business visitors will be drawn to such a show, with DP professionals, dealers, OEM's and serious business and professional end-users all visiting the exhibition with nothing but software purchase at the forefront

With that kind of captive audience you can't afford not to be a part of this important event. So turn the key to the booming software market and make **Software '84** the key to successful software sales. The first step is to fill in the

In association with Systems International, Practical Computing, Micro Business & Computer

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Name	Position
Company	
Tel No.	Telex
The state of the s	EXHIBITION AND CONFFRENC



Fund buys stake in Butler Cox The company looked at other sources of investment before getting into bed with Granville and Co. Butler considered a merger with a compatible organisation, "a market research company with no information technology experience, but that would have destroyed the integrity of Butler Cox as an institution," And the company spoke to three other mer-

working capital.

Not surprisingly, Bryan Martyr, murkering director of Vector Graphic in the UK, welcomed the move, claiming that "like bleeding has stopped", and that the contrany had turned a corner.

The new chairman is no stranger

Co, has put up £500,000 for a 21% stake in management consultancy

Lich The scramble among UK investment funds to get a part of the high tech action continues. Now the by merchant banker Granville & was put up £500,000 for a 21% stake in management consultancy stake in management consultancy Butler Cox & Partners,

Price Waterhouse recently valued Butler Cox at £2,4 million, and the company, set up six years ago, is expected to produce pre-tax profits of around £300,000 on turnover of £2.3m this fiscal year.

The Lovat Fund was formed in 1980 and has £7.5 millian to invest in private companies. It represents

R(1). Fl. and Nolan Computer Sorvices has had a strong first six months. The company, whose shares are traded on the Unlisted Securities Market, hus reported pre-tax profits up to 101% at 1283,000, on turnover up 55% at 1,269,000, in the half-way at 1,269,000, in the half-way at 1,269,000.

David Butler, chairman and the half-year to founder of Butler Cox, insisted that the company had no immediate need for external cash, but felt that it could only benefit from a small number of "blue chip"

Butler Cox will use the funds to encourage its overseas business. It plans to form a company in West Germany and is prospecting in the US for acquisitions.

US for acquisitions.

Unlike the management consultancy divisions of the big accounting firms, and the major systems houses, Butler Cox does not get its hands dirty with installation work. Its consultancy serious are at the policy level.

Company News is compiled by Dave Madden



stays a favourite

IT is easy to forget that Ferranti does more than live off the back of the Ministry of Defence. The fact that, by turnover, its computer system division makes it the UK's No 2 computer manufacturer after ICL, goes largely unrecognised.

But in the City Ferranti is a favourite, It is viewed as arguably the most reliable performer in the UK electronics sector, and its latest interim figures confirm that status.

For the year to September 30 the company reported pre-tax profit up 25% at £14.8 million, on turnover ahead 30% at £207 mil-

Ferranti said its order book stood at a record £500 million — 17% up on this time last year, Turnover is running ahead

faster than profits at the moment but margins look steady. Capital expenditure has increased 20% to file million — part of which went towards completion of the £10 million plant at Chaderton in Manchester, which has effectively doubled production capacity of uncommitted logic array systems. Ferranti has not broken down its results but the moments and broken down The Lovat Fund views its The Lovat Fund views its investment as a "long-term relationship," and although it considers that Butler Cox would be marketable within three to five years, forcing an exit by floating the company is "not an immediate objective." Ferranti has not broken down its results by business area, as it

The fund has invested £4.5 million since 1980, and Granville investment manager Andrew Merriam sees Butler Cox as strengthening a portfolio which encompasses businesses from map publishing to computer software.

Butler pointed to two main areas of future opportunity for the comdoes for finals, but it seems that
the three main divisions — computer systems, the Scottish avionics
group, and electronic components
— all made progress. The one
black spot remains the empression black spot remains the engineering division, which builds port hand-ling equipment.

Venus Scientific and Ocean Research Equipment, both bought in the US last year, are now making modest contributions.

But despite its other interests, defence contracts in one form of

Butler pointed to two main areas of funire opportunity for the company. He said: "Users need an overall policy for applying cheep technology. At the moment there is the danger of a Tower of Babel own thing without a corporate own thing without a corporate strategy—and we can deline a trade-off. This is a major concern." The second area he defliged was the convergence of "Incompage and broadcasting. Our clients want to

pany spoke to three other mer-

But despite its other interests, defence contracts in one form or another comprise around 40% of Ferranti's turnoyer. The company has now been selected as sole contractor to develop a radar system for the new Sea Harrier aircraft, and it is still benefining in the wake of the Falklands, so the MoD looks set to be Ferranti's largest paymaster for the foresees. broadcasting. Our clients want to know how to position for this,"

Advanced Technology Mainten-ance came out of Hamilton's ser-vice division and it will act as a into independent third party main-tenance. Last year as a division our revenues from external mainten third party maintenance organisa-

Tom Cranie, sales and marketing manager for the company, explained: "Hamilton started a service organisation to support the DEC and Hewlett-Packard products it handles, and we drifted

ance were greater than from the Hamilton rental maintenance we

Not all Hamilton's suppliers liked the competition, and DEC dropped Hamilton Rentals from its list of authorised terminal distributors.

SHARES TABLE

The shares table, which is specially compiled for Computer Weekly, shows selected computer companies that reflect the state of the computer industry.

	L	High	Low	Stock		Prico	C'	11	(B)	 			ı
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monster

Megalithic

YOUR views on Ada Computer Weekly, December 1 are non-

sense. It will be a disaster if Add is

the basis of real time systems in

the 1990s, and the decision to drop

involvement with that megalithic

monster is to be welcomed.

To adapt Jaroslav Kral's remark.
(ACM Sigplan Notices, Vol 15 No.

2, 1980) an Ada program "might

not need any debugging. It will be so long and slow that it will never finish its task". The consequences

of implementing defence system-

in Ada are best not contemplated:

have always assumed that the

reason for its existence lay in the

hope that the Russians might copy

it and use it for their advance

IN March 1981 John Dongall, then head of Data General in Austraha, stuck his neck out to try to "achieve the unachievable". He decided to sponsor Australia's Americas Cup challenge, and lent the team three computers and one world class sailor

"It was at a sales conference and the nucst speaker was Australia II skipper John Bertram. I made up my until then and there to back them," he says. "At the time my

by John Riley

colleagues thought I'd gone

"We tigged up sensors in 10 places on the yacht to pick up data, such as wind speed and direction. wave height and direction, angle of keel, etc., which was entered onto a Micro Nova. During trials over the two years, the clain was stored, and at the end of each day's run the optimum performance suggested by the computer was compared with the crew's actual perform-

li was that information that upped the balance and enabled Australia II to win the event, which to Australians was like winning the World Cup at football and beating the West Indies at cricket on the same day.
Dougall, who was recently

promoted to general manager of Data General UK and Ireland, proudly displays a framed and signed picture of the yacht in his office in Hounskow.

Dougall is not a sailor himself.
If I were, I wouldn't have backed

them," he says. He saw it as a straight commercial proposition.
"We got exclusive information on the race, which we distributed to heads of Australian industry twice a week for three months, and John Bertram is now available to unch with our customers for the

next year."

Dougall mined a commerce degree from Methourne University in



fuse." He was appointed general

manager for Australia and New Zealand and in September 1982 his post was expanded to take in South-east Asia too, including

liked in China," he explains.
"There are hundreds of Nova 2s

and 3s there and Nova look-alikes

are manufactured in China. With

their wooden veneer covers they look like 1950s TV sets and the 10

Mbyte-discs are in wooden cab-

inets, rather like a cocktail cabinet.

especially software, will migrate

"I am sure a lot more activity,

Dougall increased Data Gener-

al's turnover in Australia, from around 14 million US dollars in 1980 to 30 million US dollars this

year. Over that period he boosted the number of Australia's top 100

companies using Data General equipment from eight to 41.

He has noted a higher incidence of networking systems over here:

DOUGALL . . . "An offer I couldn't refuse."

1964, and is a qualified accoun-tant. He immediately joined IBM in Melbourne and worked his way up through the ranks, starting off as an operator on the night shift in a service bureau, and doing the packaging and shipping to the field.

He moved on to programming and systems engineering and by the age of 23 was in charge of systems engineering in Melbourne. He then switched to sales, became a marketing manager, and moved to New York in 1974 as product manager for the Systems After that he became assistant to

one of the senior vice-presidents.
"I saw how the organisation worked from bottom to top. New York gave me tile opportunity to broaden my knowledge so rather than being a super salesman, I saw how to bring a product to market and how strategic decisions are made at cor-

In 1976, he found himself back in Sydney as head of marketing. Then, he says, "Data General made me an offer I couldn't rewe have an aggressive growth plan. We aim to achieve a 25% increase in revenue in 1984 and boost our staff from 550 to 680."

He has four aims: to achieve profitable growth; to increase Data General's visibility in the UK; to maintain and improve field service; and to maintain and improve

employee morale.
"We want to make a fair, not rapacious profit and plough it back sensibly," he says. "I want engineers to get customers' equipment back up as quickly as possible, and that means that they must be prepared to turn to others for help, rather than demonstrate their own technical excellence to fix the problem without regard to the

He is sending round confidential

his staff.
Dougall is conscious of the change that swept Data General in the late 1970s. "When we started out, we sold 'hot boxes' - tools, not solutions," he says, "and that carried us through the 70s.
"In the late 70s people stopped

buying hot boxes, as applications software became more important. We did miss the boat with 32-bit minis, but we've caught up now and are ahead. We didn't have a strategic plan until 1980 and were all things to all people."

Data General is now focusing its effort on three areas: office systems, professional computer systems and industrial automation. Although he does not sail, Dougali is a keen tennis player, likes driving fast cars — he is changing his Alia Romeo and Mercedes for a aguar now that he is in the UK.

and enjoys swimming.

"In Sydney I lived by the sea and went surling every day before going to the office;" he says. That, The amount of effort put into the development of this revolutionary floor covering puts the UK's contribution to World Communication Year in the shade (what doesn't? - Ed). According at least, is one activity he will not be able to keep up now he is at o the manufacturer, aptly named Walk Off Mats, it is "the product of the combined expertise of Burope's leading manufacturer of

NEWS of a startling and novel product, the result of work by top European brains, plopped through wolfson of certain to liven up any office party with Christmas around the corner.

You place it is a discovered that you plus story go and Southampton University Wolfson electrical research depart

What's bugging them in Arizona?

According to Sheriff R.

had been aftered to allow, i-

Richardson, some of these phen

theory, anyone in the world will

computer to dial up the North

Telecom computer and listening

Northern Telecon, which is

sole access to the computer, is fusing to discuss the case, in

according to Williams, the sheet

experts have demonstrated

that the system is hugged. Because neither the FBI m

Northern Telecom is comm

it is not clear exactly how i

phones have been altered, exp

in the case of the FM transmit

attached to Captain Steele's or

phone. The investigation consuces and, like Watergate, I do

we shall ever quite reach the end

IT AUTOMATICALLY PRINTS

A FILE COPY IN RUSSIAN

orthern Telecom security per

WATERGATE has nothing on the mysterious case of Captain Dong Steele's radiotelephone. It all be gan when several drug investigations went wrong in Arizona, with

the villains always one up on poor

Detectives became suspicious,

took a look at Steele's plione and

found an PM transmitter there ar-

tached. A lend from the transmit-

ter led to the grounding wire of the

phone, enabling anyone within

nine blocks (about a quarter of a

mile) to tone in and hear Steele's

conversations both off and on the

"We took this FM radio," ex-

plained Evan Williams, a detective

called in to investigate, "and very

slowly we turned the dial. While

we were talking in the room, all of

a sudden our voices came through

turns out that half the government

county were capable of transmit-

ting conversations, even when the

phones were on the hook. How

At first the FBI itself was sus-

pected of bugging the county's phones - this would be quite

legal, if a little worrying to Steele

and his fellows. But in fact the

It turns out that 110 of the

county government's 247 phones were linked up to a computer in the basement of the County

Plug in for clean feet

blame lies elsewhere.

phones in Arizona's Mohave

This was but the iceberg's tip. It

old Captain Steele and his team.

You plug it in the mains, so a story goes, to conduct so electricity away to the earth car of the office mains supply. It idea is to get tid of the stores when the control has the control by the stores when the stores were supplied to the stores when the stores were stores when the stores were the stores when the sto For it's a doormat that you plug caused by friction between we Marks and Sparks man-made # all the naughty bits underest before it treaks out the company

And when it gets dirty, your

probably be able to give a few in

But no amount of weitd wonderful diversions can dist

attention from the real, unon mercial meaning of Yuletide

No ope I spoke to would of

up to how much they reckon

which is of course alcohol.

s parties.

"There are more office systems in the UK and the CAD/CAM is growing quickly," he adds. As for making changes to Data **PLATFORM** Dual processors make sense

IT has been two years now since 16-bit chips first became available, and even longer since their arrival was first forecast by the chip making investment in eight-bit software to existing eight-bit software investment in eight-bit software to existing eight-bit software investment in eight-bit software in contact the contact in the co

Personal computer manufacturers adopted a 16-bit chip with enthusiasm, only to find that the software market was taken by surprise when the first 16-bit machines begun to appear,

It took live years or so for the current eight-bit software packages to evolve and, though it is existent to upgrade than write from scratch, it will still take two to three years, in my opinion, for such a wide variety of 16-bit software to be generally available.
Where, then, is the proliferation

to the solit water which we should be able to expect? Much of that available is simply the old eight-bit application puckage with the assembler code element translated to take advantage, of these new 16-bit offerings, without on 16-bit machines. The package does not exploit the 16-bit inachine's power, for example in allowing multi-user operation.

The user, therefore, is faced with a need to take advantage, of these new 16-bit offerings, without losing the ability to continue using eight-bit software for applications that do not justify a re-investment.

Even if the software industry had been ready with plenty of good. at 16-bit software which we should

10 YEARS AGOI

FROM COMPUTER WEEKLY OF DECEMBER 13, 1973 . . . The

Country for Computers and Law was set up by the Law Society and other badies to encourage use of computers by lawyers. ICL's pretary profits stoud at £12.4 million, compared with £3.32 million in [972] the profits accreditation was given to IBM by the Soviet Union, using it the right to open an office in Moscow. IBM's: Stairs tree-banching storage and information retrieval system was demonstrated at the House of Commons by MP David Price, chaliman of the Parliamentary and Scientific Committee.

date.

New software packages being introduced for the lirst time are, of course, written in 16-bit and gencourse, written in 10-oft and generally are very capable. But there are very few of them, and often users wanting to take advantage of them will wish to retain other contputer applications on their old

were that has been translated from eight-bit does form an exception to this rule. Some high level packages have been re-compiled on 16-bit quite well, for example those written in CIS Cabal have the configurations. They are also suit-

here nor there - it exists and it is leading the field. Some 16-bit application soft-Single 16-bit processor

File



In all other instances, however it makes sense to look for a dual e where the future will lie for the

When the software industry does finally produce some results, that dual processes but even then only

Mike Blench Afthe Blench is development director of LSI

Variety is the spice of parties FOR those who missed the Royal trendy West End niterie String Variety Performance this year - lows.

Some superstance the specific formation of the specific f of trick cyclists and performing sonal appearance by the own poodles - never fear, the Christmas party season is upon us. venu with a bad perm, who

Eat drink and be merry for tonorrow we die seems to be the to computer entrepreneurs, evaluable on how not to dress at Chris notto in the cracker for many omputer companies this year.

They are really pulling out all the stops to make things go with a

The Span Group, for example, has organised not only disco, buffet and cabaret for its festivities, but also a jazz band, jugglers and fire sales. thing at a hotel in the Strand to an audience of bemused DP people.

These bemused DP people will

be no doubt wondering why they are not eating hot food too. most definitely develop an inter-

ups, but one thing is for sure. On sighting a free bar all the types who drink half a billed the most part of the year will

ble appetite for crème de mest To go one step better, Comac is frappe and Harvey Wallbanger holding its promotional party at . ANL SENT IT UP THE CHIMNEY



Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, December 15/22, 1983

There's no sense in this system

unemployed in this country, some major employers have to look overseas for qualified staff. That is the story being told by the group personnel director at Plessey, Parry Rogers, who says he has to recruit hardware and software engineers from Australia, New Zealand, Canada, and from elsewhere in Europe because of the UK's "crazy education system."

Rogers is keeping good company in criticising UK education. Earlier this year Robb Wilmot, managing director of ICL, and David Baldwin, UK managing director of Hewlett Packard, took swipes at the UK education policy. And this week Sir Kenneth Corfield, chairman of Standard Telephones and Cables, said the government must revamp the country's approach to education and training.

Rogers says that his company would like to see more university resources going on electronic engineering at the expense of the social sciences. He believes there are a large number of university graduates unable to find jobs because they do not have the skills that industry needs.

Certainly there are not enough graduates in maths, physics, and engineering. Yet the essential point is that there are not enough graduates in total if the UK wants to compete in international markets. It should not be a question of sacrificing one discipline against another. The US, for example, has a long history of the "liberal arts" university degree. But because of the very high proportion of secondary students who go on to some form of higher education in the US, there is still a significant pool of graduates in the more technical disciplines.

The UK education system is indeed crazy. But reducing resources in one area to pay for another will not have the desired effect. What is needed is a general infusion of funds into education at all levels.

That is surely as essential as every pound that is spent on

Responsibilities

GEC has followed the herd in the electronic sector and reported dismal interim figures for its half-year to September. Profits were actually down, turnover stagnant, and margins, particularly in the company's telecommunication and business systems division, squeezed badly.

Although analysts are rapidly downgrading their profits forecast for the full year, the company still has friends in the

City.

The reason is patently clear. GEC's awe-inspiring cash reserves grow inexorably - to £1.477 billion and counting, against £1.117 billion this time last year.

There is nothing wrong with having money in the bank, but cash mountains, like EEC food piles, can go rotten.

There has long been a suspicion that GEC does not have its heart in fundamental research and innovation - a view that will take more than the admirable Series 63 mini, or GEC's involvement in Alvey and Esprit pilot projects, to dispel, GEC still trails the likes of Ferranti and Systime as a computer supplier, which for a company of GEC's resources is quite absurd.

Similarly, it is interesting to see GEC's name linked with Inmos once again. Given Inmos' daring as an innovator, and its profligacy, the mix could not look more unlikely. Perhaps with the lack of credibility in the City, GEC smells a bargain.

GEC is, by market capitalisation, the second largest company in the UK, and it trails only Royal Dutch Shell and British Petroleum in Europe. With that status there come attendant responsibilities - investing seriously in Britain's technological development among them.

Lord Weinstock, managing director of GEC, is said to have the ear of the government. If the government has his ear as well, it might encourage him to put more of GEC's cash reserves back into British industry.

1984 and all that . . .

THIS week's example of the strange things people say about computers was sent in by Les Mercer, of Farnborough, Hampshire, who wins £5.

Steve Davis' brilliant performance as he took a 7-0 lead over Alex Higgins was too hot for the computerised scoring system to handle. His six breaks of more than 50 not only wilted his nent but burnt out three minicomputers. The computers cost £300 a time, so Davis' display was hardly a lucky break

In defence of the humble line driver

which does not have optical coupling allowing the V24 interface and

he line interface to be electrically

separated - a very effective form

of isolation. This together with voltage clamping on the line in-

terface to overcome any line tran-

sients associated with atmospheric

electrical disturbances provides a

very economic answer to short

The maximum distance that an

external BT EPS8 circuit can be

provided is usually 11-15 kilo-

metres and normally lies within an

exchange area. However, the

distance data transmission.

loop problems but I know of no BT EPS8 approved line driver over his letter (Computer Weekly, November 24) and his comments regarding Fred Jennings'

Basically the information given s correct but the conclusions he draws are somewhat erroneous and I feel I must correct the record and

put in a good word for the humble line driver.

Line drivers do require a DC circuit, and British Telecom pro-vides this in the form of the EPS8, circuit was designed specifically for the use of line drivers and baseband equipment and consists of

Very early non-isolated line drivers did suffer from DC ground

tising standards have plunged to an all-time low. I refer to your

edition of December 1 and particu-

larly to page 62 concerning an ad-

vertisement under the banner of SMR Limited, an organisation

majority of lines are under five kilometres and any modern line driver should be capable of driving Advertising standards questioned

> ager often reflects upon the somewhat easier and more enjoyable days of being on the road and totally in control of his own carnings and job satisfaction.

However, there are many more purporting to be leaders in high professional ways of addressing such individuals who may wish to technology recruitment.
While I accept that attracting return to a sales function rather good quality sales personnel to rethan management, without resortcruitment advertising is not the ing to such crudity as "pratting easiest of tasks, I believe, in this around with staff" as the consul lant put it. and imagination has been stretched to ridiculous and obscene proportions. Moreover, I

At the best of times, maintaining credibility in our industry is an

Information on Prime AM writing to correct some tactual errors concerning Prime's In-

formation in your article, The Richard Pick Award (Computer Weekly, November 24).
It is unfortunate that your correspondent was less than fair to the many hundreds of users who have

accept that having progressed into

systems on Prime computers. You state that "Information requires the presence of the Primos operating system and therefore (requires) a large machine to run even a few terminals, and has not sold to date in large numbers.

On the contrary, over 1,300 installations around the world have already discovered the benefits of Prime Information, both as a fourth generation productivity tool and as a vehicle to support commercial application packages. While Information has been activ-ely marketed by Prime in the UK for just one year, almost 50 licences have already been issued.

The implementation does not involve the overheads or inefficiencies implied by your writer. Users on the smallest of Prime's multiuser systems enjoy excellent performance and response times. More importantly, the combina-

tion of Information and the Primos operating system gives them a sig-nificant number of advantages. Information systems can co-exalready taken up Information

st with traditional Cobol, Fortran and similar applications on the same systems at the same time. Best of all, Information users can exploit the full networking and communications capabilities for which Prime systems are well

Prime believes in this type of fourth generation production tool which offers fast application development with low maintenance and makes available to the noncomputer professional many re-port writing and enquiry facilities - and Prime was very early to provide and deliver it. MALCOLM HOAR

Marketing manager, systems

Scepticism about AI

I AM indebted to Arnold Arnold (Computer Weekly, November 10) successful when their designers successful when their designers successful when their designers have studied the world's realities in enough depth. Their data and processes reflect how things are and how they come about. The he writes: ". . . causes and consequences are not amenable to discovery by such means [statisti-cal and probabilistic methods]".

At the Polytechnic of North London Expert Systems Weekend in September, I picked up a leaflet advertising the book. I did not buy a copy because a lot of explana-tions had already been given in the There are characteristics of the

systems described at that week-end, including Chris Naylor's Doctor, which cooled my initial enthusiasm. They operate by probabilities; their decisions rest - are, say, Baysed - on what

seems likely; any references to how things actually work are, at best, implicit or, at worst, ignored enti-rely. If I follow the advice of these systems then I do something teal; there is no way of reducing the statistical significance of a course of antibiotics or of replacing 0.984

Everyday computer systems are successful when their designers failures arise when this insight missing; no amount of clever pro gramming will paper over th

The expert systems which heard described and saw demon trated at the Expert Systems Weekend lack the touch of a craftsman who really knows ho his material behaves. Thei ilders may be pretenders to th discovery of the Philosopher Stone . . . gold by numbers is no to be found by these means even i there is some passable brass.

Now I have seen the author and the publisher's reactions to the review (Computer Weekly, November 24) I read the former defending the use of what I have 'called "clever programming" and the latter the value of "passable brass". Neither of these approaches digs at the roots of my own doubts RICHARD H. PICKARD

All line drivers produced by Dymajority of the line drivers available on the market and although we provide both types of equip-ment, baseband and line driver, the line driver must be defended. It need not be restricted to inhouse operation nor does it suffer from surge problems on the line as suggested. They can be used with equal confidence on in-house or externally provided BT circuits and have no DC coupling continu-

my knowledge is somewhat of

wonder, condone such an abuse o

advertising standards and such a

crude attempt at addressing pro-

fessional salespeople in the compu-

ANDREW G. CARTER

Director/general manager

literary master. Would he,

ROGER BELL European product marketing manager

Dynatech

er industry?

Specialist Computer

technology

IN an interesting article on new technology in Wales (Computer Weekly, November 10) you stated

that Newtech was a company de-veloping software for BBC

microcomputers. This is quite wrong, and I should like to put the

record straight. The company to

which you referred was Clwyd

Technics, which is certainly asso-

ciated with us. Newtech is Clwyd's

new Industrial Innovation Centre,

which is engaged on a wide-rang-

ng programme of R&D in fields as

diverse as microelectronics and

which is rapidly gathering momen-tum, is thus a much broader opera-

Dean Research and Innovation

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The Newtech programme,

Dr J. C. ALLEN

H. R. SIMPSON Dunstable

warning system

such as this do nothing to enhance the image or reputation of profes-I COMMEND you on Manage-ment Review (October 27, also for The principal of this particular organisation writes editorial for Computer Weekly regularly and to promoting me to the position of general manager in the article Will the micro kill the minicomputer?

Promoted!

As a result of this journalistic inexactitude, your readers who know me in my true capacity of marketing manager may be tempted to send me congratulatory telegrams or Champagne. While the latter will be warmly received. I must ask you to point our that our general manager is John Dougall, who has recently joined us from Data General in Australia.

At the time Paul Walton wrote the article. Dougall was awaiting official confirmation of his UK work permit and was therefore adopting a low profile. This has now been received and your readers can expect to see and rend much more of the real DG GM in

100% British WHILE I much appreciate John

Kavanagh's piece on our recent Australian investment, I was con cerned to see BIS referred to a "the US services group" in the opening sentence. BIS is, o course, 100% British owned and would be most grateful if yo could inform your readers accord

B. G. ALLISON Chairman/chief executive

A typo - we apologise. - Ednor.

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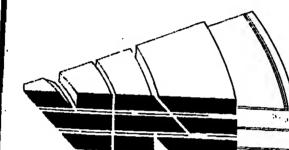
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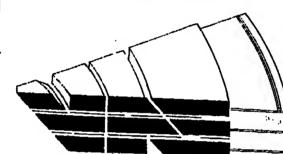
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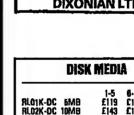
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Ref. A5

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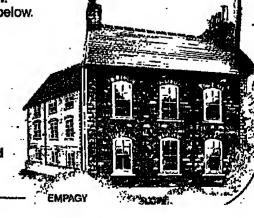
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Petroleum company in Central I ondon has formulated its plans for 1984, and requires six programmers and analyst/programmers. Two years IIIM COHOL with some CICS und/or DL/I ressential. MVS is preferred, though they will knok at good DOS/VSE people. From positions will be pure development for at least three years, and two will be support roles, involving extensive user halson. REF, CAV2970

To £11,000

COBOL/CICS

CENTRAL LONDON

SYSTEMS ANALYSTS/ESSEX TO £14,000

Because of increasing denand for new systems, I have two clients wishing to recruit a number of analysis to work on the design and development of financial and commercial systems. These are challenging positions with excellent career apportunities. If you have over two years analysis experience, and have taken at least one project from design to implementation, I would like to hear from you. REF E/W3099

IBM SYSTEM 38 £9-13,000

I have opportunities for 1984 in Middlesex, Bucks and Central London have analyst/programmers and programmers with 18 months + RPG III experience, wishing to increase their salaries and promotion prospects. For a new challenge in the New Year please ring me. REF, C/W2221



COMPUTER PERSONNEL CONSULTANTS

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The European Software Company, the leader in manufacturing decision support software for the large IBM DP centers, is setting up its research and development

We are looking for dynamic systems professionals able to cope with our current business growth (over 40% every year for the last 5 years).

These systems specialists should have a few years experience with large IBM data centers environment running MVS with IMS or CICS subsystems at their latest level. Fluent english is a must, other european languages

Our company operates in 15 different countries all over Europe. Candidates must be ready to travel in Europe to support our sales force for pre-sales and after-sales

Please send complete c.v. in absolute confidence to:

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Both positions are for initial one year contracts. Excellent salary packages are - Free furnished accommodation

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Tecnodata (UK) 19 Woodlands Drive Normanby

IMMEDIATE

FREELANCE ASSIGNMENTS
SYSTEMS PROGRAMMER Must have good VAX experience with current practical working knowledge of VAX System Services, FORTRAN AND MACRO 32. Simulation Software design and implementation experience preferred but not essential.

Knowledge of TELEPHONY preferred but not essential. Should have at least five years' in industry and a sound knowledge of microprocessor machine architecture and hardware interfacing techniques as well as being proficient

Please contact either Paul Roebuck or Lawrence Mills

Computer Systems Engineers Limited Tower House. High Street: Aylesbury Bucks Tel. 0296 32023 Evenings after 70m or weekends 0296 33059

Butel Business Systems is a medium-sized Software/Systems House, on target for a £2 million turnover this year. Since our establishment in 1978 we have achieved considerable success in the software of the same of the software of the same of the s the sale and implementation of turnkey projects and in package development. Now, continuing progress presents a number of excellent career opportunities for true computer professionals

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Target earnings: circa £23,000 + Car + BUPA

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Senior Programmer/Analysts £9,500-£12,000 + Car + BUPA

Extend yourself and develop your career as a commercial programmer/analyst. You must have proven commercial COBOL experience, preferably in interactive environments. And you must have a willingness and the ability to deal directly with clients.

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This is an ideal opportunity for young COBOL programmers (minimum 18 months experience) to enter a fast moving commercial environment. Excellent career development opportunities and the latest software technology.

IMPORTANT — All of the positions advertised will be located West of London. In the first instance write with CV, or telephone, the London Office below.

Sales Vacancies: Andy Miller, Sales Director, Technical Vacancies: Ray Sparrow, Systems Director.



Butel Business Systems, Garrick Industrial Centre, Garrick Road, London' NW9 6AQ, Tel: 01-202 0206.

Computer Services Manager

Salary range: £22,880 to £24,590 per annum. The North Eastern Electricity Board invite applications for the post of Computer Services Manager at their Board Headquarters located at Carllol House in the centre of Newcastle upon Tyne. The Computer Services Manager is responsible to the Secretary for advice on the application of computers throughout the Board and for ensuring that the requirements of all user groups are integrated into the Board a overall plan. The successful applicant will be responsible for controlling and co-ordinating all aspects of Computer Services, including systems analysis, programming, technical development and operations, and for evaluating the costs and benefits of proposed systems and new computer techniques.

The Board's installation is soon to be based on a dual ICL 2966 32 megabyte machine and a single ICL 2966 16 megabyte machine. There is a rapidly growing terminal system with over 200 video terminals operating through network processors to the mainframe. The applications are wide ranging, some using database management systems with on-line data entry facilities.

The successful applicant will have had extensive responsible experience within a computer installation and will need to show high qualities of management, both in the Computer Services Section and in the Board af large, in effectively co-ordinating the requirements of all users. Applications by letter endorsed 'Computer Services Manager' should be addressed to the Personnel Manager, NEER, Carliol House, Newcastle upon Tyne, NE99 ISE, so as to be received by 30th December, 1983.

(This post is open to both male and farmale applicanted). Salary range: £22,880 to £24,590 per annum.

DENTAL ESTIMATES BOARD, EASTBOURNE

CHIEF SYSTEMS DESIGNER (SYSTEMS MANAGER)

SALARY SCALE: £10,393 TO £12,615 + ADP ALLOWANCE OF UP TO £654 P.A.)

The Dental Estimates Board for England and Wales require a Chief Systems Designer (Systems Manager).

Applicants should have had experience at management level within a computing department responsible for the maintenance and development of a wide range of applications. Experience of mainframe ICL equipment would be destrable but is not essential.

Health Service conditions of service and superannuation arrangements apply to this appointment.

Further details and a form of application may be obtained from the Clerk to the Board, Dental Estimates Board, Eastbourne, East Sussex BN20 8AD (0323 25552). Closing

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IBM

3083 SAS AND/OR PL/1 ANALYST/PROGRAMMER UNIPAY & UNIPERSONNEL ANALYST MIDDX 4331 OS/VS1, CICS, ROSCOE SYSTEMS PROGRAMMER **HERTS** 4341 'INQUIRE' COBOL ANALYST/PROGRAMMER SYSTEM 38 RPG III PROGRAMMER (BANKING EXPERIENCE) KENT SYSTEM 38 RPG III PROGRAMMER (FEBRUARY START) LONDON SYSTEM 38 RPG III ANALYST/PROGRAMMER (FEBRUARY START) KENT KENT MVS SYSTEMS PROGRAMMER SURREY DOS/VSE SYSTEMS PROGRAMMER SURREY IBM 4341 TO WANG VS100 CONVERSION ANALYST/PROGRAMMER SOUTH LONDON

ME29, 2903 TME COBOL ANALYST/PROGRAMMER CITY VME 2900 TOTAL, SCL TPS PROGRAMMER SURREY VME 2900 TECHNICAL SUPPORT SOUTH LONDON VME 2900 IDMS, TPMS COBOL PROGRAMMERS BIRMINGHAM VME 2900 IDMS, COBOL PROGRAMMERS SOUTH COAST VME 2900 TPMS & IDMS COBOL PROGRAMMERS & ANAL/PROGS. **ALL AREAS**

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For details of these and other on-going requirements please contact Lorraine, Wendy or Tony at KPG, or contact Lorraine on Walton-on-Thames 245552 (evenings and weekends).

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Prog Various Snr Anal Progs Prog/A P Sys Anal A Prog S/W Prog A Prog A Prog A Prog	DL1 rogMANTIS UNIPAY FOCUS	±COBOL COBOL ±COBOL ±PL1 COBOL PL1 PL1	Wilts Various Kent North Various Berks London S Coast Lond & Hants	MVS MVS MVS VM/CMS VM/CMS VM/CMS SYS 38 8100 DPPX DOS IBM PC	A Prog Progs Prog Sys Prog Prog A Prog Progs/Ana Progs A Progs Prog		PL1 PL1 RPG III COBOL RPG II	S Coast Sussex Berks Kent/Su Essex Sussex Various Sussex Berks
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	BURRS BURRS	A Progs Progs	DMS II	COBOL	Scotland
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•	HWELL DPS4	A Prog	IPS TPS	COBOL	N'hants London
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٠.,	INTEL 8085	A Prog A Prog	TPS	COBOL	Sussex
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COMPUTER WEEKLY December 15/22 1983 29

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Unicom is fast developing a reputation for excellence in providing a strongly competitive service to the international commodity trade.

As such their plans now require someone with good management skills and a sound realtime background to direct their R & D department. It is envisaged that the successful individual will have total responsibility for internal and external development on a number of leading projects whilst having direct access into the Board of Directors.

Ideally you will have a background in communications or process control whilst having a knowledge of PDP 11, RT/11 or RSX. An understanding of Microprocessor Systems together with high level languages is important.



If you would like to further develop your career whilst stamping your own personality on an expanding organisation then telephone Miles Richards in strictest confidence on 01-938 1804 (24 hours) or 01-847 2385 evenings 7 p.m. - 9 p.m.



COMPUTER MANAGER c. £13,000 **HP 3000/RPG II**

Expanding international company based in London requires a manager to take control of their small computer department. Applicants should have over four years D.P. experience which must include a thorough understanding of RPG II and preferably some HP 3000 exposure although training may be given where necessary. As well as an excellent starting salary the company offers free medical insurance, 22 days holiday and the probability of a company car after a qualifying period.

SYSTEMS MANAGER c. £11,000 **BCL MINI**

Company based in N. London seek a Systems Manager to both Install a BCL MOLECULAR 18 mini computer and take existing systems away from a software house. Applicants should have good knowledge of ASSEMBLER or other similar mechina code language, be able to work on their own and be good communicators. Obviously any previous BCL exposure will be of particular interest. Systems being implemented initially include sales and purchase order processing but many other applications are planned for the future.

COMPUTER MANAGER c. £10,000 HONEYWELL L6

Installation based in Bucks, seek an Analyst/Programmer who is looking to move into a managerial position. Applicants should have knowledge of HONEYWELL L6 with either COBOL or SCREENWRITE gained in any commercial environment. They should also be able to work on their own initiative and preferably had some client contact experience. Perks include discount on company goods, non contributary pension scheme and 22 days holiday.

ANALYST/PROG DATABASIC

A rapidly expanding softwere house is currently recruiting Analyst/Programmers with a minimum of one and a half years DATABASIC galand in a PRIME or CMC environment. The software house actively encourages employees to service clients in a consultancy role therefore applicants should be presentable, confident and have the ability to deal with first time users. The client can offer job setisfaction, regular salary reviews and intensive training.

PROGRAMMER RPGII

London based site require a programmer with one year's commercial RPGII. The herdware is WANG but any hardware will be considered. Applicants should have standard accounting knowledge i.e. General Ledger, Purchase Ledger, etc. and any manufacturing exposure would be of special interest. This site will offer the successful candidate rapid

ANALYST/PROG RPGII/III

An International bank has identified a requirement for an Analyst/Programmer with a solid GSD background. They have recently upgraded from a 34 to a 38. Applicants should have at least one years programming with some systems experience in a GSD background (RPGIII would be of special interest). As well as a good starting salary a standard bank-ing benefits package applies.

ANALYST/PROGS to £14,000 VAX/IBM

Repldly expanding company, a market leader in their field, based in S.W. London seeks several Analyst/Programmers to join their development teams utilising VAX and IBM equipment. A minimum of 18 months COBOL gained in a DEC or IBM environment is required. This is a good opportunity to work on a variety of projects and offers successful candidates very good career prospects with a generous company benefits package.

SENIOR ANALYST £13,000 + CAR

Our Client, an internationally renowned concern baskel in Berks, urgently requires an experienced Systems Analyst to take a major role in the development of new systems. Ideally applicants will have a financial systems background gained in an ICL environment using IDMS techniques. The position will also involve the control and management of analyst/programming teams. Those benefits normally associated with a large company are augmented by a company car.

ALL LEVELS ICL COBOL

A growing Easex based company, heavily committed to major developments of financial systems on ICL 2900/VME systems, is seeking experienced ICL people at all levels. Progs. and Analyst/Progs. should have 18 months or more COBOL experience, the latter with some formal analysis. Analysts and above will have at least two years' systems exposure. These positions attract a generous company bene-fits package including an excellent profit share scheme.



to £14,000

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IBM SYSTEM 38

SENIOR SYSTEMS **ANALYST**

£9,060-£10,539

Accesses need Attalyst is required to work as part of an enthusiastic to an correctly encaped on transferring systems to a SYS11 M 38

You will need a minimum of two years experience of RPG III and the if this to maplement systems quickly. Local Government experience

Sow developing of areas have been identified which will meltide word processing and personal computing

For an informal discussion please contact Mr Ray Witty on Bath

Rebot mon benefits include assistance with comoval, settling in from a purchase and hodging expenses

Application form and further details from the Personnel Department, 8A Terracy Walk,

Telephone Bath of FFF Larding Closing date 30 December 1983



UNIVERSITY COLLEGE LONDON

CHIEF SYSTEMS PROGRAMMER

TEAM LEADER required for the Computer Centre Systems team. The Centre runs a service based on linked GEC 4190 computers and associated local and wide area networks. Several years' working with operating system software and come supervisory experience are essential. Salary in range f12,346-£16,311 inc. Landon Allowance, according to qualifications and experience. qualifications and experience

Full c.v. with names of two referees to the Computer Manager, University College London, Gower Street, London WC1 8BT, or telephone 01-388 6721 for further details

IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY **MACHINE SUPERVISOR/PROGRAMMER**

required to work in the Administration Date Processing Unit. The duties include the expension of daily operaturinal schedules and control of operators' activities, the writing, and toxing of programs.

A grout aducational background is assential. Candidates should have a knowledge of DEC superfitting and have had several years working experience as a programmer (COROL or RASIC) and as an operator.

Salary in range (6310 09875 plus (1186 Lundon Allowance according to qualifications and experience. Fix exects' annual holiday.

Further particulars from the Personnet Secretary, Imperial College of Science and Tech-onlogy, Lenton SW1 7AZ. Closing date for receipt of applications is 9 January 1984.

SOUTH OXFORDSHIRE DISTRICT COUNCIL

SYSTEM CONTROLLER

A progressive and exciting local authority which is going places with systems seeks a System Controller who will be responsible to the Project Controller (SOLAPS) for the operation of a Prime 750 installation running a graphics may beauti GDS information system, Primes experience in a main user site is an essential requirement.

Conditions of employment are excellent and refection assistance will be given if oppropriets.

For job description plus application form telephone Ray North, Assistant Tressurer (0451) 36351 ext 3511 or write to PO Box 22, Crowmarsh. Wallingford OX10 8HH.

PUBLIC HEALTH LABORATORY SERVICE BOARD

COMPUTER OPERATIONS CONTROLLER

Scale 9. Salary Scale £8990 to £10900 inclusive of London Weighting scale at balary scale response to responsible of London Weighting framited at the Headquarters of the Public Health Laboratory Service in Colindate, London, You will be responsible for the inenagement of computer operations at Colindate and actively involved in the idealist planning and implementation of the re-siting of existing equipment in a new building schoduled for completion at the end of 1984. Some fravel to provide assistance and advice to other PHLS taboratories distributed throughout England and Wales will be required.

Two years' experience in a supervisory role and knowledge of on-line kystems, and data communications are assential and and pasterns and computers would be advantageous. As a senior member of a small team a high degree of personal rusiasm and commitment is assential.

Application forms, job description and further particulars are available from the Personnel Officer, Public Health Laboratory Service Board, 81 Colindale Avenue, London NW9 5EO, tel: 01-200 1285

Closing duto: 6 January, 1984.

CUMPUTING SERVICE

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Inner London Education Authority

BRIXTON COLLEGE

56 Brixton Hill, London SW2 1QS

BUSINESS STUDIES DEPARTMENT

LECTURER II — COMPUTER STUDIES

A computer professional is required as a Lecturer II in a young, fast-growing computer section at the college from January 1984, or as soon as possible. THIS IS A RE-ADVERTISEMENT.

The person appointed will be required to contribute to the teaching of computer awareness throughout the college and specifically to develop BTEC Computer Studies.

Applicants should possess relevant professional qualifications and/or experience. The possession of a teaching qualification would be an added advantage but is not essential as facilities for teacher training would be provided.

Salary on an incremental scale within the range £7,215 to £11,568 including £987 inner London Allowance — sterting point depending on qualifications, training and experience.

Application forms available from the college (tel. 01-737 1166), or from the Applications Secretary at the above address (Ref. 68.25).

Closing date for receipt of applications - January 6th, 1984. ILEA is an Equal Opportunities Employer

Brighton College of Technology Formerly Brighton Technical College Principal L.H Farnsworth OBE, MA, BSc

FACULTY OF ENGINEERING SENIOR LECTURER IN MICRO ELECTRONICS (REAL-TIME PROGRAMMING)

£10,683-£13,443 (Ref: 554)

Real-ring to soon as possible to teach melniy on a new full-time course in Real-rime Programming leading to a TEC Higher Certificate. Applicants should be graduate and/or Chartored Engineers and experienced in both hardware and software aspects of microcomputer systems. Hardware level languages of 61-bit systems as well as 8-bit systems is desirable. High-knowledge of operating systems.

Relocation grants available to account the processing systems.

knowledge of operating systems.
Relocation grants avellable in approved cases.
Details from Principal, Brighton College of Technology, Palham Street,
Brighton BN1 4FA. Telephone: (0273) 688971. Closing date 10 days from
this advertisament.

BIRKBECK COLLEGE (University of Landon)

COMPUTER

PROGRAMMERS

LONDON BOROUGH OF HOUNSLOW

Technical **Assistant**

Two vacancies axist in the College Computing Services which operates a network valing a GEC Switch and a VAX 11/750 running VMS and providing a local frontend to the University Network and its main hardware (Amdahi V8, Cray 1S, etc.) in addition to local computing. They are for: (Communications) Scale 6/PO1(D) £8,751-£11,849 inclusive An additional person is required within the Technical Support Group of the 1. A Sanior Programmer/Adviser to provide expert advice and assistance on the local file and data management eoftware (VAX Codesyl dbms, Data Dictionary, etc.) for data administration (integrity, swallability, dump and recovery and affocation strategles), and for user advice in making efficient use of allocated space (data compression, etc.). At least five years' experience, two in some area of this work is required and ability to assume full responsibility for Data Administration in due course. Salary on scale £12346 to £16311 (inclusive of London Weighting). Computer Division to be mainly concerned with the introduction and eventually

the delly supervision of the Council's recently ordered Libraries' System Mini-Computer. The successful candidate should have at least four years' experience to our years' experience in Computer Operations, a good understanding of Data Communications Procedures Line/Modem Protocols and Network Problem
Determination. This post is 2. An Applications Programmer to assist users and develop applications software particularly related to the Amdahl and the Cray. Programming will be mainly in Forlian. An ability to produce clear documentation and to work in close listson with users is required. Salary on scale 28376 to £12801 (Inclusive of London Weighting).

Application forms from the control of the control of

ol subject to shift working, nowever there may be a requirement for occasional Saturday duty and time would be given in lieu.

Further details can be obtained from David Evans on Ext 3125 or write for an application form (closing date for return being 30.12.1983) to the Data Processing Manager, Civic Centre, Lampion Road, Hounslow TW3 4DN.

UNIVERSITY OF LEICESTER MEDICAL SCHOOL

RESEARCH ASSOCIATE (APPLICATIONS PROGRAMMER)

Closing date for applications 2 January 1984

Lewisham and North Southwark Health Authority have several computer developments in progress and have mainy applications stready well established. The use of computing in the Authority is axpected to expend rapidly over the next few years. This post will be concerned with the devolument of software for clinical and
preventive medicine programmes in the
cospital and community, Much of the work
will be in the health service setting so a
trowledge of MIMPS would be adventasecure. In addition, the solution of such
nardware problems as networking of
mitroes and the relationships of such
asystems to meinframes will be a small, but
Spiery on the 14 rangle, 17, 190-17 [1,518.]
Further details and application forms can
be obtained from Professor. M. Clarke,
Spiery on the 14 rangle, 17, 190-17 [1,518.]

Further details and application forms can
be obtained from Professor. M. Clarke,
Spierces. Suiding, Leicener, Royal infrmary, 1-0. Box 56, 1-10 of r. LEZTIX.

Closing date for applications 2 January

years.

There is a vacancy in the District Computers for your on microcomputer data collection and management reporting systems for diagnostic and the authority departments. Applicants should have experience of developing applications on micros, running Crim and districts activated for the result of the collection of the systems. The collection of the

Salary 17.404 p.s. £8,027 p.s. + £1,642 p.s. Landon Weighting. For further details please cultimet the Par-equasi Officer, Guy's Hospital, London, 3.2.1. Telephone 01 207 7609, ext. 3479. Fisses discle 16: A/10. 7650

Application forms from the Assistant Secretary (Personnett, Birkbeck College, Malet Street, London, WC1E 7HX (telephons 01-580 6622, axt. 529) or apply with full av. in duplicate and names of two referess.

LEWISHAM & NORTH SOUTHWARK HEALTH AUTHORITY

MICRO ANALYST/

PROGRAMMER .

Suffolk County Council

Highways Department

The following staff are required as a result of the restructuring of the Technical Services Group to meet the demands of Direct Lebour Organisation legislation, and to further the introduction of Information technology systems.

For the Development Team:

SENIOR ANALYST/PROGRAMMER

Grade SO2: £9,945-£10,539 p.a.

Applicants should preferably have a degree or equivalent qualifica-tion in Computer Studies or similar numerate discipline, be a mem-ber of a professional body, and have at least 4 years experience in programming and analysis in an engineering or sciontific field.

ANALYST/PROGRAMMER

Scale 6/SO1: £8,154-£9,660 p.a.

Applicants should preferably hold an HNC in Computer Studies or equivalent qualification in a numerate discipline and at least 2 years experience in programming and analysis in an engineering or scientific field.

For the Support Team; TECHNICAL ASSISTANT

Scale 4: £6,264-£7,005 p.a.

Scale 4: £6,264-£7,005 p.a.

The post holder will initially be appointed on a two year temporary contract renewable subject to review. The appointed person will be responsible for providing support and monitoring the day-to-day use and operation of the Department's Computer resources both applications and systems, hardware and software, to meet the Department's data processing requirements, particularly those in remote Area offices. Applicants should preferably hold an HTC or equivalent qualification and have 3 years experience in Civil or Highway Engineering design or maintenance, and hold a current driving licence.

Highway Engineering design or members, and the diving licence.

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Further details and application forms obtainable from The County Surveyor, St Edmund House, Rope Walk, Ipswich iP4 1LZ, tel. Ipswich 55801, ext. 6309, returnable by 21st December 1983, 169271

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For an informal discussion, please ring Nell Bone on 01-928 9292, extension 2110.

Closing date for completed applications: 21 December 1983.

BOX NUMBERS

Box number replies should be addressed to:

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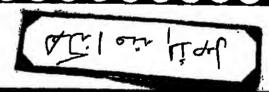
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write with a full CV to: Sally Grice, Technological Resources, Philip House, 8, Ravenswood Road, London SW12 9PJ. Tel: 01-675-5051. Please quote Ref. 235

MANAGEMENT SELECTION CONSULTANTS

A new job for

STEVE sat marouned on a bottle-clustered desk, the debris of deter-bol. "Not getting motore are nined merriment all around him. His legs swung idly to and fro, at odds with the tempo of the driving lisco sounds, which dominated all but the occasional shrick from the temporarily decadent secretaries who were experiencing that two sherries, five Pernods and a very large Bacardi and coke could cradicate all inhibitions or propriety, hitherto assumed by the less perceptive members of the sales epartment.

li occurred to him that he ought be enjoying himself, but he wasn't. On previous occasions the office Christmas party had been great fun. Masks were revealed; even the managing director came down from his pedestal and had a dance with the tea lady.

Last year Steve had really got to be personnel department of the personnel

discovered that their new found affinity would be short-lived, as that was her final day with the

They both knew it was a lie, but Bill understood

ompany. She had decided upon a hallenge elsewhere.

Now he was in the same posi-tion. Now he knew what she means when she said she felt like a stranger among people she had known for years. Last week they had all been his colleagues, his partners in that unending quest for identifying business opportunities and making the sale; enthusiasis together in the gentle art of giving people your own way. Yet now

hey were his competitors. He still wasn't really sure why he had applied for the job in the first place. He just happened to be eading the Sales Bit and it caught is eye across the other side of the page. It was him exactly; right job, right money, right location.

In other circumstances he would have registered it with interest and as quickly forgotten it. But it was one of those days that solesmen sometimes have when either they have the time to think, or a particular event occurs, and suddenly all the frustrations of the selling round come rushing to the surface. For Steve it was putting forward a selling idea to his sales manager, only to have it cast aside without even the satisfaction of discussion.

His short-lived anger soon sparked off a whole train of considrations about his inability to have any real influence upon company ttitudes, the limited opportunities or personal advancement, the lack of scope for creative thinking. So, he had picked up the telephone there and then and called the number on the advertisement.

The agency, and subsequently he computer company concerned. were enthusiastic, even flattering about his achievements, and in no time at all he had been offered the ob and accepted it.

Suddenly there was the challenge of a new situation and a new product. He had been carried along with the euphoria of being made to feel important, comfortable in the warmth of being wanted. Now he wondered why. Everyone had been so nice when

the word got out that he was leav-ing. He fully expected to be dismissed there and then, as is usually the practice with departing sales people, but they had asked him to stay on until Christmas. They all seemed to be sorry he was leaving, all that is except Phil Brown, who was continually runner-up to him in all the sales com-

petitions and had aspirations to ake over his territory. "Hey Steve, what you doing?"

Steve lowered his feet on to a carpet that for many days after would be the source of much resentment among the office clean-

"Why don't I get you another drink?" enthused the same conce. and Steve smiled his approval. "That's the first time I can remember the sales manager getting me a drink," he mused. "It must be the price! Bill wasn't a bad guy when you got to know him. Sometimes a bit

hasty; occasionally intolerant, particularly when the pressure is on and God knows that's often

hope you won't object to my put-ting it into effect at the next sales meeting despite your departure."

Steve was taken aback.
"But I thought you . . . "There didn't seem to be any point in revealing his misconception at this stage of developments, and he heard himself saying: "Sure. I hope you find it useful."

How could be have mounderstood? Maybe it was Bill's attitude at the time, maybe it was his own; certainly the communications between them had always left a lot to be desired.

And who was responsible to that? The modern trend is to emphasise the need for communication within the business operation That in itself, however, is a philosophy that can ostensibly be sails-fied with the occasional interdepartmental memo. Why can no one see that the need is for involvement by all people, at all levels, in pursuit of the end-user's

needs? "Actually, Pd better be going. told Margaret I wouldn't stay ton long. I'm overdue already." They both knew it was a lie, but Bill

understood. Steve had already packed his things, even that dreadful plastic tiger that some enthusiastic vicepresident had given him the year before for achieving the highest

sales in the country.

So, it was simply a matter of picking up his bag, shaking a few hands, pretending not to see just a hint of tears in his patient secretary's eyes, and casting a final hol-back at the desk that had witnessed so many glorious sales vic-

tories and some heroic failures. He could still hear them singing by the time he had reached the bottom of the street. "We wish you a merry Christ-

mas and a happy new year." new product. He was to undergo the pain of starting all over again.

At least he had learned something, and certainly he had some growing to do. Alan Williams

PUZZLE **ANSWER**

THE search for the smallest such number can be drastically reduced by considering the fact that all numbers differ by a multiple of nine from the sum of their digits.

This leads quickly to the conclusions that: (a) since the required number and its treble differ by a multiple of nine from the same digit-sum, they must obviously differ by a multiple of note from each other; and consequently b the two numbers must both be divisible by nine; and totally that both numbers must have a digit-sum divisible by mic.